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THE CHEMIST & DRUGGIST, DECEMBER 27, 1924.



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DIARY 20/- PER ANNUM.  
SINGLE COPIES 9d.

No. 2344.

DECEMBER 27, 1924.

Vol. CI.

*Founded A.D. 1715  
within ye sound of  
Bow Bells in  
ye City of London*

*The Directors of*  
**Allen & Hanburys Ltd**  
*take great pleasure in wishing their  
Pharmacist friends all over the World*  
**A Merry Xmas and  
a Prosperous New Year**

1924-1925.

# Wright's Coal Tar Inhaler

for diffusing the valuable antiseptic constituents of  
**Wright's Coal Tar Soap**

The notable features of this apparatus are that—

The fluid cannot spill or become overheated, being completely absorbed by a block of incombustible porous material.

The medicament may be diffused with safety in the form of vapour, for eight hours continuously, without any attention whatever.

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COMPLETE INHALER, with Vaporising Fluid and two absorbent blocks	3/6	2/7 each	2/3 each
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2½ per cent. CASH.

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“*Opportunity only knocks once*”—**isn't true**, it is  
as constant as the door on which it knocks.

Because most old year regrets are caused by  
opportunities missed rather than losses sustained.

## Our Motto for 1925

- is the little word

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Applied to business it produces ENTHUSIASM,  
ENERGY, CONFIDENCE, SATISFACTION,  
AND ACHIEVEMENT, and is responsible for  
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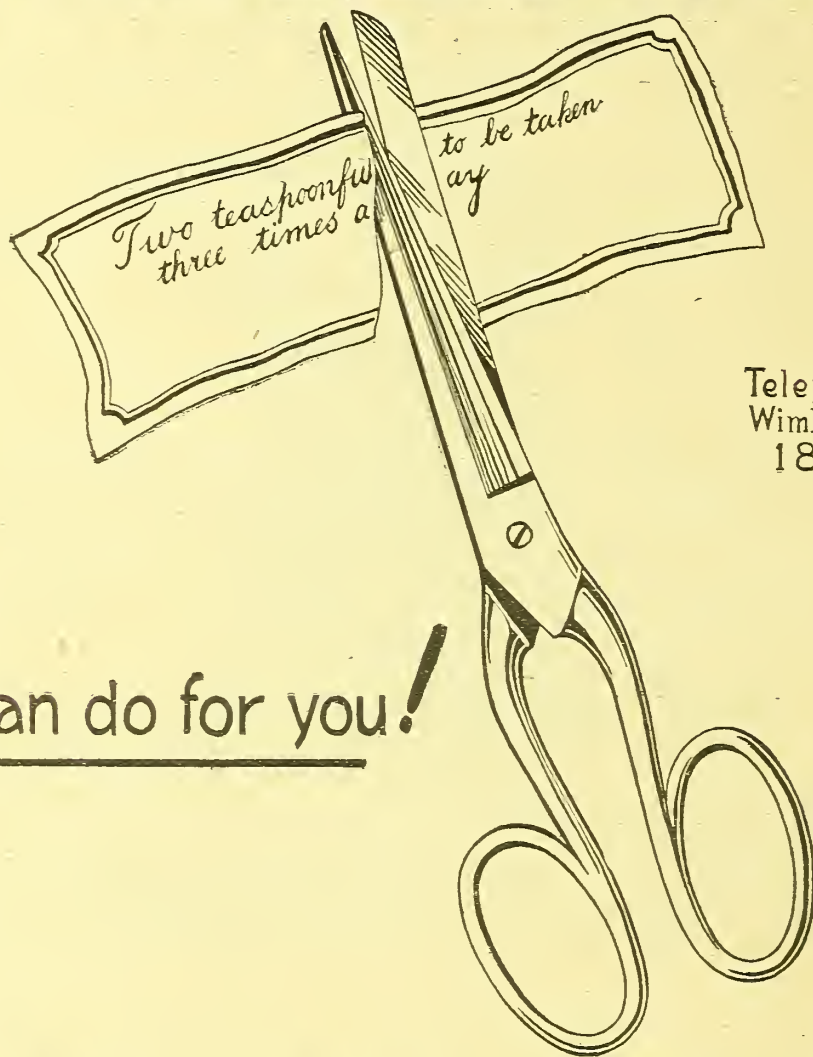
wishes you a year of prosperity, health and  
contentment, and thanks you for much of its  
own growth and success during the old year.

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Attractive and useful folders that will help to enhance your sales are sent out with every consignment of goods.

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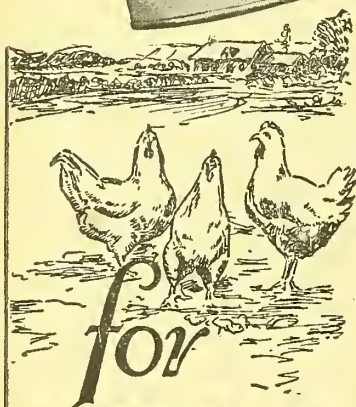
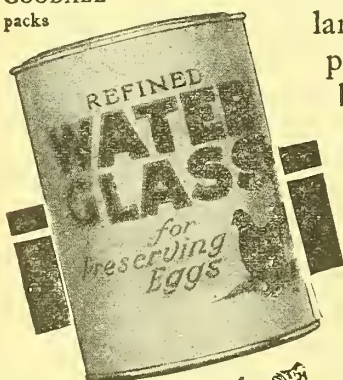
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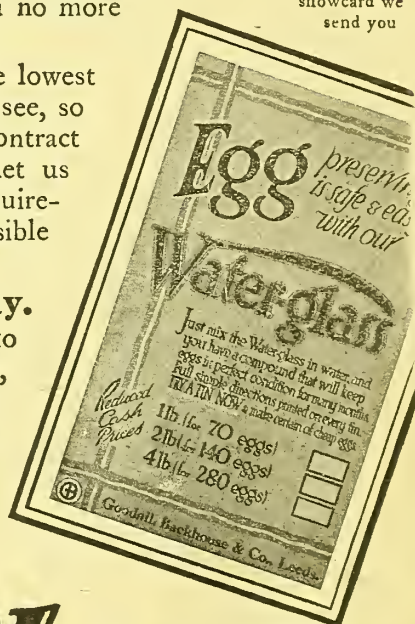
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send you



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Happiness and Prosperity  
Now—and in the New Year

—the wish from



Cheltenham

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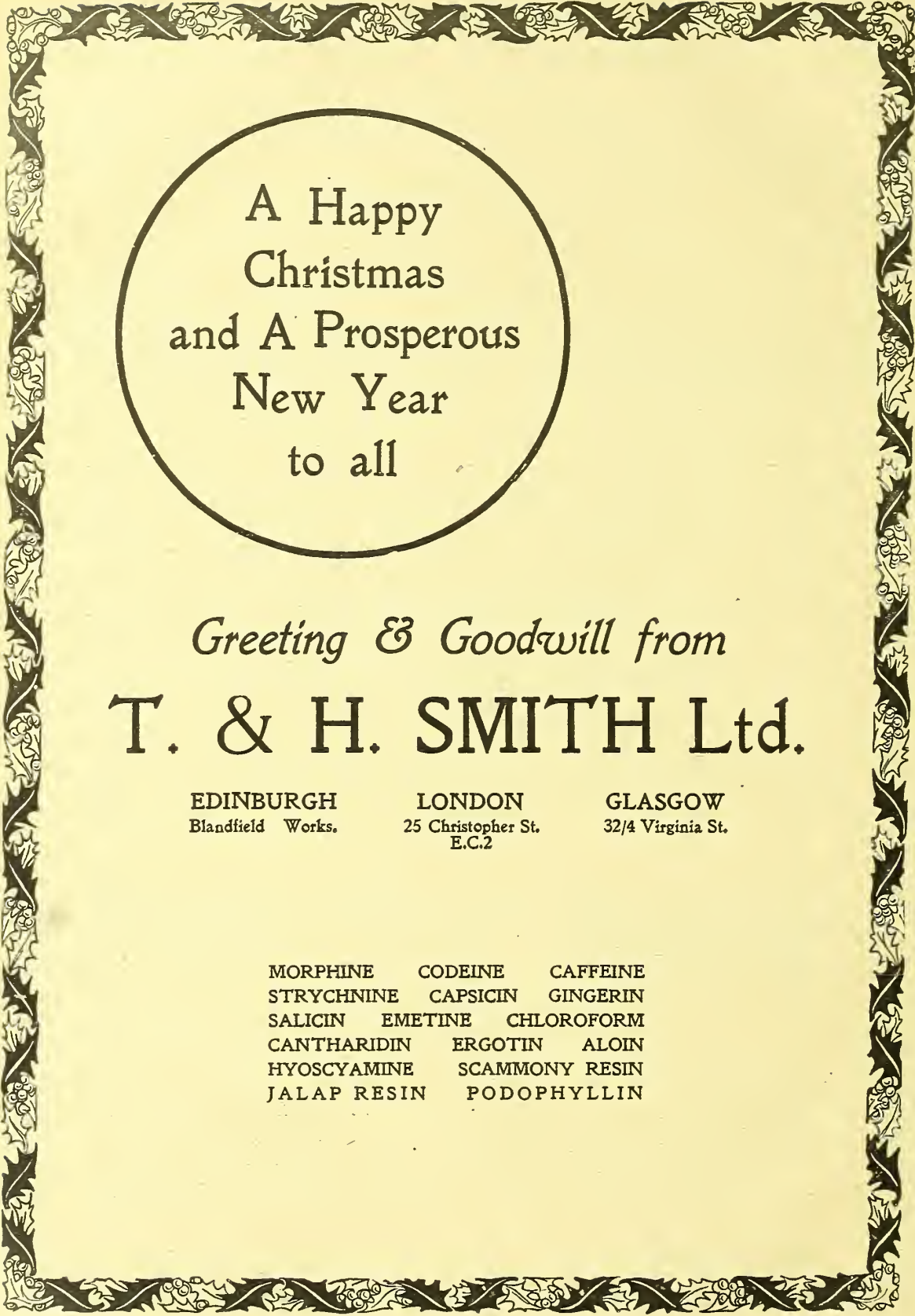
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and throughout the Country  
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a Happy Christmas and a  
New Year of Prosperity in  
all their business dealings

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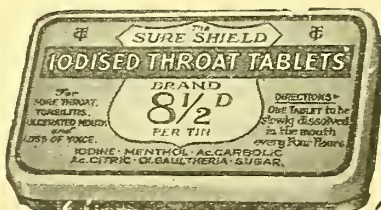
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# Maw's Page

## The Pharmacist's New Year

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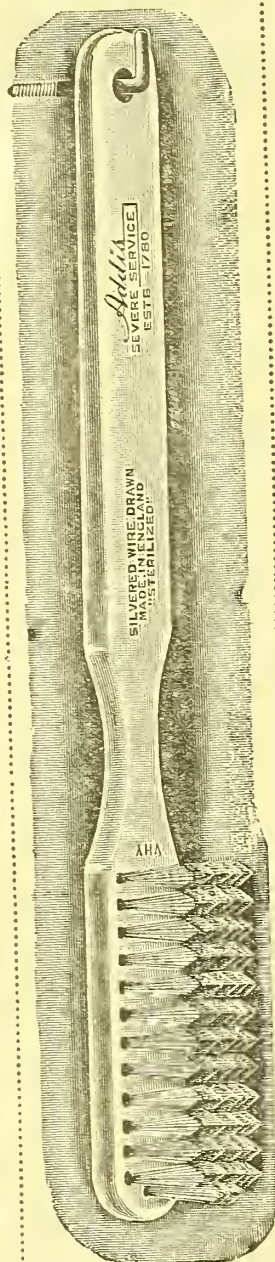
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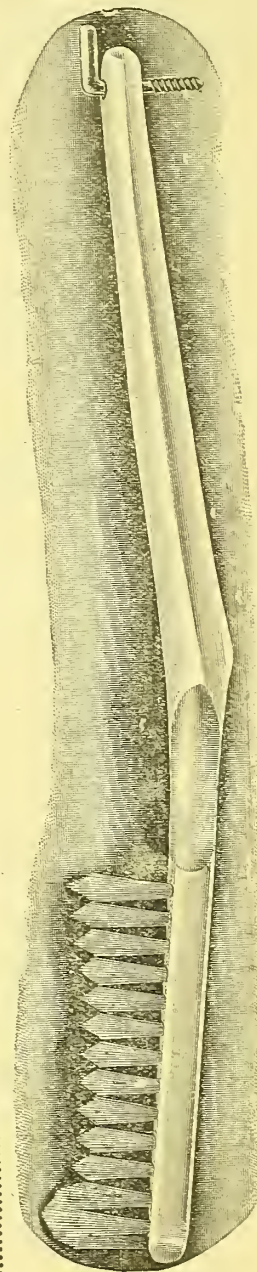
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for a Happy Christmas and  
a Prosperous New Year*

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PHŒNIX HOUSE,  
19 OXFORD STREET, W.1

Happiness and Prosperity  
to all Chemists during  
the Coming Year

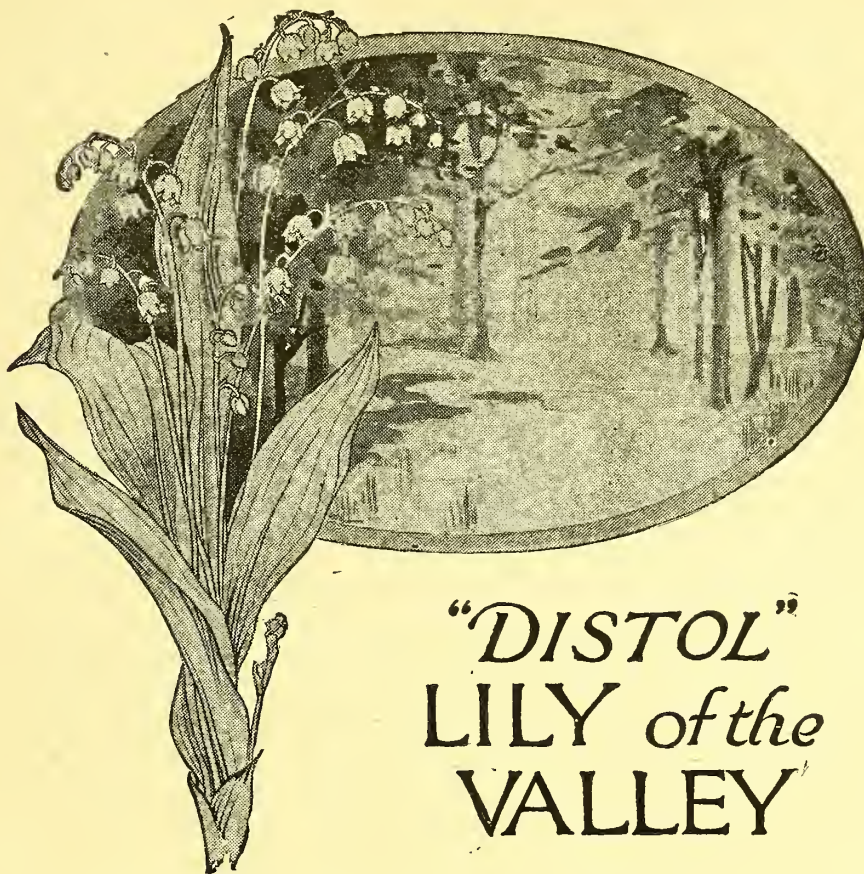
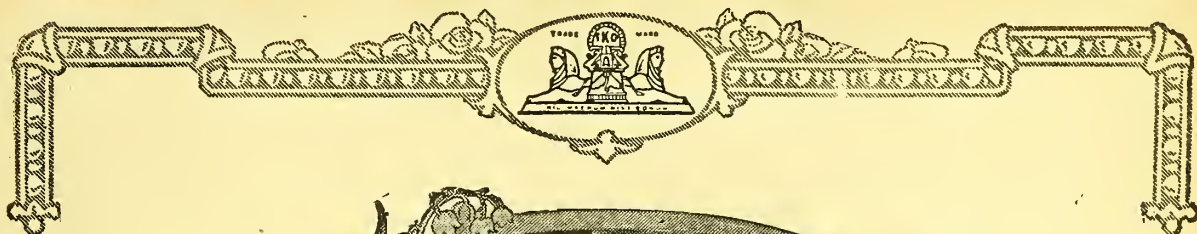
*Cordial Good Wishes from*

*Reddgrave, Butler & Co., Ltd.*

*Forest Lane, Stratford, E.15*

"Russolax" Medicinal Paraffin. Toilet Paraffin. Brilliantines. Olive Oils.

PARAFFINUM LIQUIDUM, B.P.



## "DISTOL" LILY of the VALLEY

**T**HE story of "Distol" Lily of the Valley is the story of any one of the forty-five "Distol" Ottos. The odours differ, but the quality and convenience are the same always.

Whether your demand is for an elusive perfume such as Lily of the Valley or a clinging oriental scent such as Nubian Poppy, "Distol" Ottos will supply your needs at a minimum of cost and Labour, and without locking up capital in big stocks of S.V.R.

An ounce of any "Distol" costs 7/6, and is made in a few moments into a choice perfume by the mere addition of S.V.R. and Aqua Dest. without the need of tinting, filtering, blending, distillation or any other time-absorbing process.

Send for samples of perfumes made under ordinary commercial conditions from any six "Distol" Ottos.

**THOMAS KERFOOT & CO. LTD.**  
BARDSLEY VALE, LANCASHIRE,  
& Bardsley House, London, N.1  
ESTABLISHED 1797.

A/619

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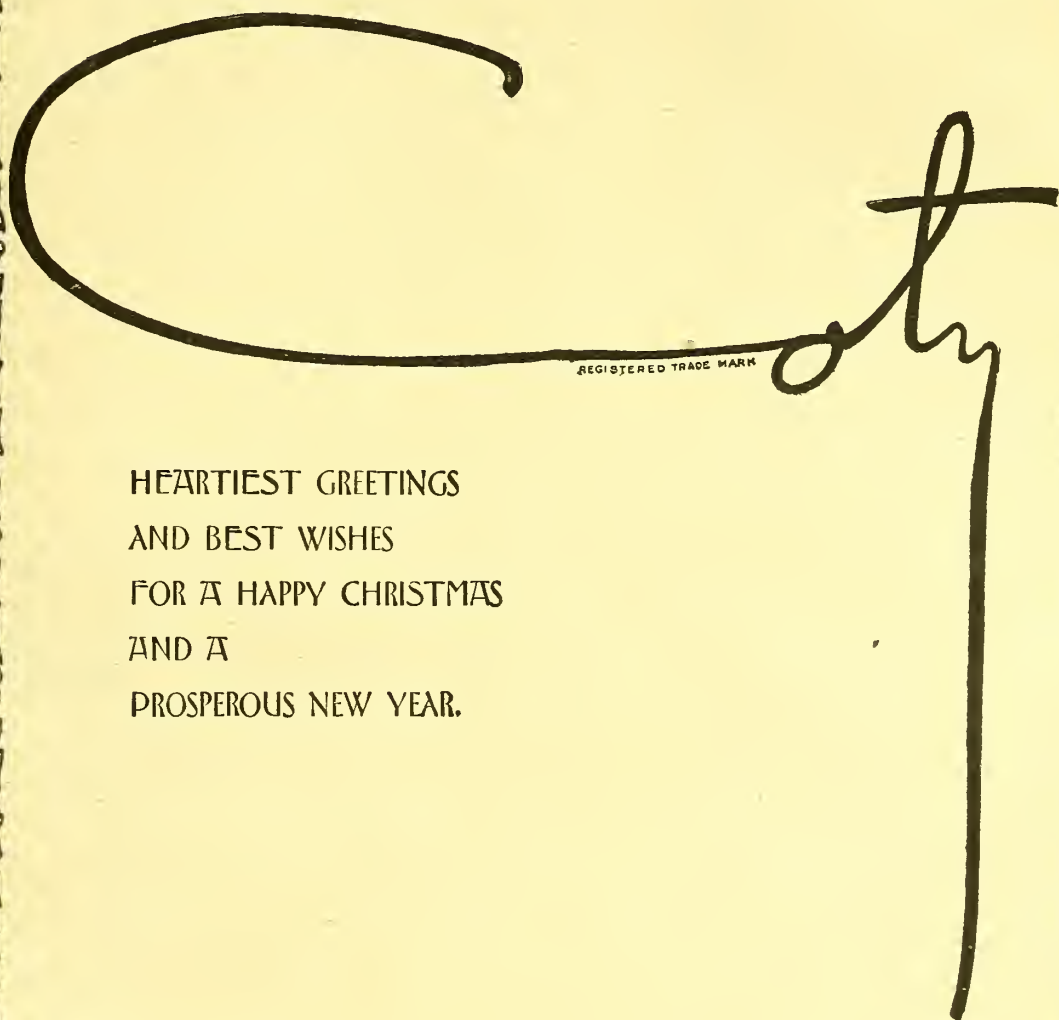
# Repetition that does not pall

*With each succeeding year the renewed expression of cordial goodwill to the Trade comes with fresh emphasis. We desire that everyone connected with Pharmacy and the Chemical, Drug and allied Industries may experience in the New Year greater Prosperity and Happiness. It will be our endeavour to promote this by keeping you all well in touch with the vital matters affecting our joint activities, and by assisting you in your difficulties.*

A Happy & Prosperous New Year  
to all our friends.

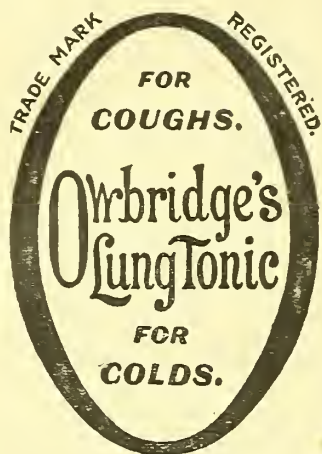
*The Publisher,*  
**THE CHEMIST AND DRUGGIST**

42 CANNON STREET,  
LONDON. E.C.4  
DEC. 27, 1924



HEARTIEST GREETINGS  
AND BEST WISHES  
FOR A HAPPY CHRISTMAS  
AND A  
PROSPEROUS NEW YEAR.

COTY (ENGLAND) LTD.  
"Parfums de Luxe"  
WALMAR HOUSE, 298, REGENT STREET,  
LONDON, W.1.



## Christmas Greetings

and

Good Wishes

for the New Year

W. T. OWBRIDGE, LTD., The Laboratory, HULL



To the thousands of Chemist Friends throughout the United Kingdom and Colonies

### Thomas Harley

The Proprietor of "Rodine" — The Piper o' Perth, sends heartiest Christmas Greetings. Let "Rodine" help you through 1925.

For Success and Wealth  
Push "The Piper o' Perth."

## DR. BENGUE'S BALSAM

RHEUMATISM, NEURALGIA, GOUT.

PULMO (BAILLY).—DR. BENGUE'S DRAGÉES.

FORXOL.—HEMOSTYL.—EUPURGO.

DR. BENGUE'S ETHYLCHLORIDE.

RICARD-CACHETS (Free sample on application).

ANESTILE.

NARCOTILE.

EUPHORIAN AMPOULES (Entero-Antigens)

WRITE FOR DR. BENGUE & CO., MFG. CHEMISTS,  
SPECIAL TERMS 52, CHARLOTTE ST., LONDON, W. 1.

## NURSE HARVEY'S MIXTURE

A safe, simple, and reliable remedy for Children's Ailments is advertised so extensively in the daily and weekly Press as to bring mothers to the retailer without effort on his part.

The selling has been done before the mother reaches the chemist, and, having supplied her, it is only common sense to claim she will buy other family necessities from him. Moreover, the continuous demand for it produces a quick turnover.

For Direct Terms apply to—

OSCAR SCRUTON & CO., YORK

**1925**

❏ ❏

**LORIMER-MARSHALL Ltd.**

wish all their friends and customers

**A VERY HAPPY AND  
PROSPEROUS  
NEW YEAR**

❏ ❏

**LORIMER-MARSHALL Ltd., 12 Tower Hill, London, E.C.3**

Telephone : NORTHERN 2102

Telegrams : ADOLPH, B'HAM.

**ADOLPH SCOTT LTD.****24, 25 & 26 GT. HAMPTON ST.  
BIRMINGHAM**

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**TOILET ARTICLES  
REAL & IMITATION  
TORTOISESHELL  
EBONY — IVORY  
WITH OR WITHOUT CASE**

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**ILLUSTRATED CATALOGUES ON RECEIPT OF TRADE CARD.****JEWELLERY : FANCY & LEATHER GOODS : PLATE & SILVER**

# DEARBORN (1923) LTD.

37 Gray's Inn Road, London, W.C.1

## Toilet Specialties.

	Price per doz. to Retailer	Selling Price P.A.T.A.
<b>PILENTA SOAP</b> ... A complexion soap.	10/-	1/-
<b>PROLACTUM</b> ... For the lips.	10/-	1/-
<b>PARSIDUM JELLY</b> ... For wrinkles.	10/-	1/-
<b>ALLACITE OF ORANGE BLOSSOM</b> ... A dressing cream.	22/6	2/6
<b>BORANIUM</b> ... A hair tonic.	22/6	2/6
<b>CLEMINITE</b> ... For a face lotion.	22/6	2/6
<b>COLLIANDUM</b> ... For a face tint.	22/6	2/6
<b>PERGOL</b> ... A deodorant.	22/6	2/6
<b>TEKKO PASTE</b> ... Camphor cream.	22/6	2/6
<b>STALLAX</b> ... For a shampoo.	22/6	2/6
<b>JETTALINE</b> ... For clearing the skin.	31/6	3/6
<b>PHEMINOL</b> ... A depilatory.	36/-	4/-
<b>MENNALINE</b> ... For the eyelashes.	36/-	4/-
<b>MERCOLIZED WAX</b> ... A face cream.	{ 18/- 31/6	{ 2/- 3/6
<b>STYMOL</b> ... For oily complexions and blackheads.	36/-	4/-
<b>SILMERINE</b> ... Hair-curling fluid.	22/6	2/6
<b>BARSYDE</b> ... Dandruff eradicator.	22/6	2/6
<b>TAMMALITE</b> ... For grey and faded hair.	22/6	2/6
<b>LIQUID PERGOL</b> ... To check excessive perspiration locally.	31/6	3/6
<b>BICROLIUM</b> ... For whitening the hands.	22/6	2/6
<b>COCONOIDS</b> ... For figure development.	31/6	3/6

### The Products of

Messrs. PARKER, BELMONT & CO.

<b>CLYNOL BERRIES</b> ... For obesity.	{ 36/- 58/6	{ 4/- 6/6
<b>SOFT PALERIUM</b> ... For wrinkles.	45/-	5/-
<b>LIQUID NAIL POLISH</b> ... Brilliant and lasting.	10/-	1/-

Stocked by ALL Wholesale Houses.

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Australia: ALL WHOLESALE, & DEARBORN (Australia), Ltd., Grace House, Clarence Street, Sydney.  
South Africa: LENNON, Ltd., Cape Town, etc.  
SIVE BROS. & KARNOVSKY, Johannesburg.  
India: FRAMJEE & SON, Bombay.  
A. I. CHOUDRY, Calcutta.  
New Zealand: SHARLAND & CO., Auckland and Wellington.  
South America: DEARBORN (South America) Ltd., Calle Pavon 2100, Buenos Aires.  
Straits Settlements & Federated Malay States: MEDICAL HALL, Ltd., Singapore.



## 1925

*We wish to thank our Customers in all parts of the Kingdom for the Loyal Support which they have extended to us during the past year.*

*We are looking forward to the New Year with every confidence and trust that by the mutual co-operation of manufacturer and retailer, it may prove a bumper one.*

**We Wish Our Customers A Happy and Prosperous New Year.**

**SPURWAY ET CIE.**  
LIMITED.

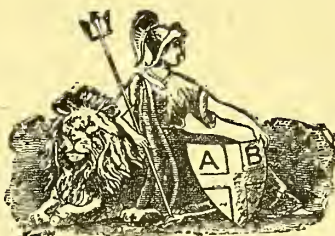
**89 GREAT EASTERN ST.  
LONDON, E.C. 2.**

Telegrams: "Neroli, London."  
Telephone: Bishopsgate 1372.

Factories & Distilleries: Cannes-Grasse, Riviera,  
Technical Laboratories: Paris.

**NEW YORK. LEIPZIG. KINGSTON (ONTARIO).**

TRADE



MARK

ESTABLISHED 1850.

The Directors, Departmental Managers  
— and —  
Representatives of

**ARTHUR BERTON, Ltd.**

LONDON

MANCHESTER

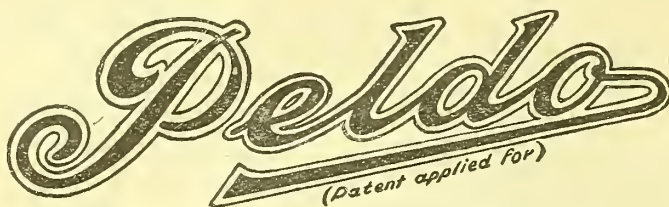
GLASGOW

Extend to their Friends  
At Home and Abroad

**Hearty Xmas Greetings**

and Best Wishes for a

**Happy & Prosperous  
New Year**



THE  
INVISIBLE  
GLOVE

IF YOU SHOW 'PELDO' YOU WILL SELL IT!

'PELDO' IS ORIGINAL.

It is not a Substitution for Anything.

Obtainable from all the Patent Houses @ 13/6 per dozen.

WINDOW DISPLAY MATERIAL FREE ON APPLICATION.

SOLE PROPRIETORS AND MANUFACTURERS:

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Devon Wharf and Bell Wharf,

EMMOTT STREET, MILE END, LONDON, E.1.

ESSENCES

HIGHEST CONCENTRATION.

Sole Agents for Gt. Britain and Colonies

FOR

**FRIES & BRO. NEW YORK**

The World-Renowned Makers of  
FIRST QUALITY ESSENCES.

Stocks in London. PEACH APRICOT HONEY MAPLE &c. Ask for Quotations & Samples.

**A. CONNELL & CO.,** Melba House,  
WENLOCK ROAD, CITY ROAD, LONDON, N.1  
Phone: Clerkenwell 7266. Tele.: "Nitrozone, Ald. London."

ESTABLISHED 1768.

**ANTOINE CHIRIS**  
GRASSE

ESSENTIAL OILS  
FLORAL WATERS  
GUM BENZOIN  
OLIVE OIL

**ANTOINE CHIRIS LTD.**

3 DRAPERS GARDENS,  
THROGMORTON AVENUE, E.C.2.  
Telephone - - - - Bank 5021

# COLOURED PUFF BOWLS

No. 660.

28/- dozen.

LARGE  
VARIETY  
OF DESIGNS  
AND COLOURS.



## ALABASTER BOWLS

WITH KNOBS

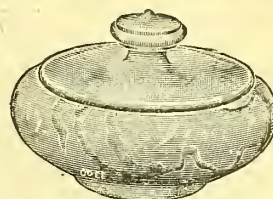
5 in., 3/9 each.

6 in., 4/3 each.

## GREEK KEY

6/6 each.

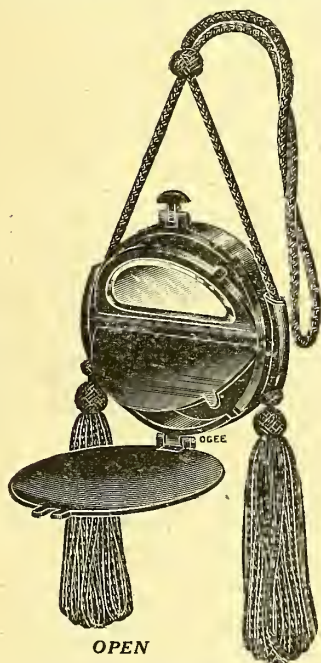
Assorted colours.



SMALL ALABASTER BOWL  
WITH KNOB.

## LATEST FASHION IN VANITY CASES

SUITABLE FOR  
CHRISTMAS GIFTS



OPEN

THESE CAN  
BE SUPPLIED  
IN A LARGE  
VARIETY  
OF SHAPES  
AND  
COLOURINGS

9/- each.  
12/- each.

13/6 each.  
15/- each.

16/6 each.  
17/- each.

18/6 each.  
25/- each.

33/- each.



CLOSED

WE HAVE  
ALSO A  
SELECTION  
OF CHEAPER  
LINES.

4/- each.  
4/6 each.

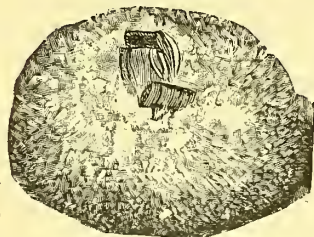
4/9 each.  
5/9 each.

5/- each.  
6/9 each.

10/- each.

etc., etc.

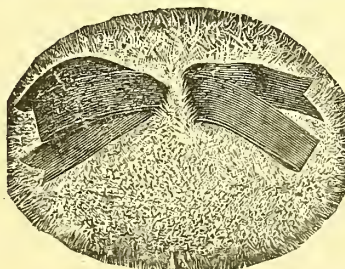
### Empress Puff.



With Ribbon.

No. 0	...	...	...	5/-
" 1	...	...	...	8/-
" 2	...	...	...	11/6
" 3	...	...	...	15/6
" 4	...	...	...	19/6

### Best Swansdown Bath Puffs.

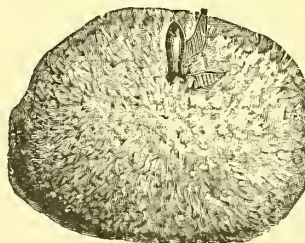


For Puff Bowls.

4 inch,	18/- doz.	5 inch,	33/- doz.
6 "	51/- "	7 "	72/- "

Each in separate box.

### Handle Snowball Puff.



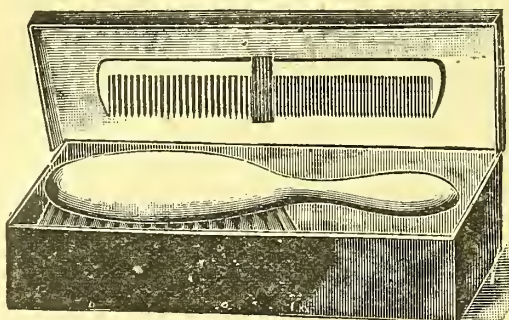
No. 0	...	...	...	5/9
" 1	...	...	...	9/9
" 2	...	...	...	12/6
" 3	...	...	...	15/-
" 4	...	...	...	20/-

OSBORNE GARRETT & CO. Ltd., 51/54 Frith St., Soho, London, W.1

# Seasonable Sundries

## LADIES' BRUSH CASES

1773.—LADIES' BRUSH CASE, lined moirette, containing ebonised hair brush and comb ... each <sup>s. d.</sup> 3 3



No. 1773.

lined sateen, containing ebonised hair brush, mirror and comb ... " 4 9

lined sateen, containing two ebonised hair brushes, mirror and comb ... " 6 6

lined moirette, containing **ebony** hair brush and comb ... " 6 6

lined sateen, containing **ebony** hair brush, comb and **ebony** mirror ... " 13 6

lined silk, containing **ebony** hair brush, comb and **ebony** mirror ... " 16 6

lined silk, containing **ebony** hair brush, **ebony** mirror, comb and **ebony** button hook ... " 19 0

lined silk, containing **ebony** hair brush, **ebony** cloth brush, **ebony** mirror, and **ebony** button hook ... " 22 0

lined sateen, containing white xylouite hair brush and comb ... " 6 0

lined sateen, containing white xylouite hair brush, mirror and comb ... " 8 6

lined sateen, containing white xylouite hair brush, cloth brush, mirror and comb ... " 11 6

lined sateen, containing white xylouite hair brush, cloth brush, hat brush, mirror and comb ... " 15 0

589.—SPECIAL LINE in card box, containing **ebony** hair brush and comb ... " 4 6

569.—" in card box, containing **ebony** hair brush (whalebone bristles) and comb ... " 5 0

CARRIAGE PAID ON ORDERS OF £3 AND UPWARDS.

A discount of 5% for prompt cash is allowed on all amounts of 10/- and upwards. Money returned if goods are not satisfactory. Write for New Price Lists of Druggists' Sundries, Toilet Requisites, Rubber Goods, Cut Sheet Rubber Appliances, etc.

**BURGE, WARREN & RIDGLEY, LTD.** 91 & 92 GREAT SAFFRON HILL, LONDON, E.C.1.

## G. B. KENT & SONS, LTD.

Are known the World over as the Largest Manufacturers of

**BEST BRITISH RUSHES**

Please write for full Particulars to—  
**75 Farringdon Road, E.C.1.**

## The Evan Williams

ALWAYS IN GREAT DEMAND.  
PRICE LIST ON APPLICATION.

The EVAN-WILLIAMS Co., Ltd., 14/15 Union St., W.1.

## ORIGINAL SHAMPOO.

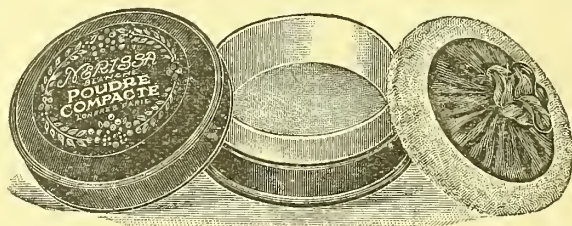
## FACE POWDER

No order too large—none too small.  
Any Grade  
Any Colour  
Any Quantity  
**COLD CREAM—VANISHING CREAM**  
**MASSAGE CREAM—TALCUM POWDER**  
All Merchandise in Bulk or in your own Containers.

Drug Grinding done for the Trade.

The O-PINE-O Manfg. Co. Ltd., Montague Rd., Hornsey, London, N.8

## Poudre Compacte



The best range of Solid Powders on the market.

All complete with Puff, in assorted perfect tints. In attractive Show Boxes of 1 dozen.

F100. "Thé Dansant," Nickel Plated Box ... 6/- doz.

F101. "Thé Dansant," " " " with diminishing mirror ... 7/6 "

F102. "Secret Charm," Embossed Aluminium Box, with diminishing mirror ... 5/- "

F103. "Golden Dawn," Imitation Gold Box, with diminishing mirror ... 7/6 "

F104. "Damask Rose," Imitation Gold Box, decorated in colours, with diminishing mirror ... 7/6 "

F1003. "Nerissa," Attractive Card Boxes as illustrated, in handsome display outer ... 5/- "

Obtainable through all Wholesale Houses.

Perfect Powder. Freedom from breakage. Daintily presented. An assortment that will meet the taste of every buyer and bring repeat orders.

Sole Manufacturers: **SOLPORT BROTHERS, LTD, 184/190, Goswell Road, E.C.1.**

P E A R S

Special Bonus offer until Dec. 31st.

*It is still not too late to  
take advantage of this offer*

Every Chemist will be quick to avail himself of our new remarkable offer, details of which should now be in his possession.

This means 7/- extra in his pocket for every gross of soap he purchases.

All we ask in return is that he keeps our new boxes on display in his windows.

If you have not yet received particulars of this new offer, it is well worth your while to apply for details to our Sales Department.

Most dealers have already sent in their first order and are now in a position to order again.

*Write for particulars to our Sales Department*

A. & F. Pears, Ltd., 71-75, New Oxford Street, London, W. C. 1.

## LINES THAT SHOW GOOD PROFITS



### Taylor's CIMOLITE PREPARATIONS

50 YEARS' REPUTATION.

Used in all Royal Nurseries and by the Nobility.

#### CIMOLITE TOILET POWDER.

Boxes, 1/12 (per doz. 9/6)  
Tins, 3/-, 5/6, 11/- (per doz.  
27/-, 49/3, 96/-)

Bottles, 3/3, 6/6 (per doz.  
30/-, 55/6)

#### CIMOLITE TOILET-CREAM.

Collapsible tubes, 1/3 (per  
doz. 11/6)

#### CIMOLITE SOAP.

Per tablet, 8d.; per box 2/-  
(per doz. 3 tab. boxes, 20/-)

#### CIMOLITE FACE POWDER.

Boxes, 1/12 (per doz. 9/6)

Tins, 3/- (per doz. 27/-)

Bottles, 3/3 (per doz. 30/-)

#### CIMOLITE SOAP (Violet-Scented)

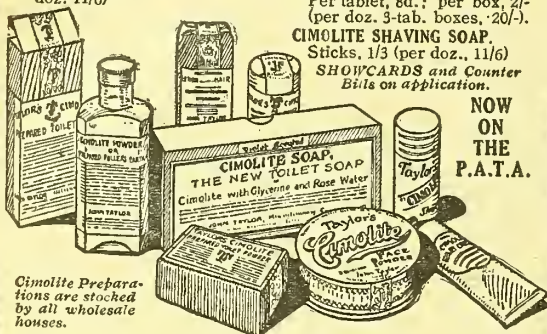
Per tablet, 8d.; per box, 2/-  
(per doz. 3-tab. boxes, 20/-)

#### CIMOLITE SHAVING SOAP.

Sticks, 1/3 (per doz., 11/6)

SHOWCARDS and Counter  
Bills on application.

NOW  
ON  
THE  
P.A.T.A.



Cimolite Prepara-  
tions are stocked  
by all wholesale  
houses.

ATTRACTIVE SHOW CARD obtainable from  
all wholesalers or direct.

PREPARED ONLY BY

JOHN TAYLOR, Manufacturing Chemist

90 BAKER STREET, PORTMAN SQ., LONDON, W.1

## B.I.F. Space in Greater Demand.

The news that the B.I.F. Birmingham is for 1925 to include all exhibits previously seen in London in addition to the full schedule for Birmingham previously announced has resulted in very heavy bookings. More visitors will now visit Birmingham, the Fair will be of an even greater importance than in previous years.

You can introduce your manufactures to the world's buyers through the B.I.F.—but if you intend to be represented you must

Book your space NOW for

**THE BRITISH INDUSTRIES FAIR,  
BIRMINGHAM, Feb 16 to 27, 1925.**

The Schedule of Exhibits includes:

Chemicals, light and heavy—Domestic Chemical Products—Drugs and Druggists' Sundries—Perfumery—Scientific and Optical Instruments—Medical and Surgical Instruments and Appliances—Spectacle Ware and Opticians' Supplies—Photographic Apparatus and Requisites, etc.

Send for complete information now, to the General Manager,

**THE BRITISH INDUSTRIES FAIR,  
95 NEW STREET, BIRMINGHAM.**



Advertised daily in all London daily papers

**Tatcho-tone**  
For GREY HAIR

TATCHO-TONE CO., 5 Gt. Queen St., Kingway, W.C.

PRICES:  
8d. Trial phial,  
per doz. 5/9  
4/6 Large size,  
per doz. 42/-



## SHADEINE

For COLOURING GREY HAIR

This popular article is largely advertised  
and stocked by all Wholesale Houses.  
Trial size 8d. per doz. .. 6/-  
1/4 size, per doz. .. 12/-  
2/6 size, per doz. .. 24/-  
3/9 size, per doz. .. 36/-

The SHADEINE CO., 58 Westbourne Grove, London, W.2.



## BOOKS FOR PHARMACISTS.

Send us a postal order and we will send you a 32 page  
catalogue of professional and business books for  
pharmacists, and a copy of

### "THE SPATULA"

an illustrated monthly magazine for druggists, full of  
American snap and enterprise.

The SPATULA, BOSTON 14, MASS., U.S.A.



# DENTAL PLATE BRUSHES

for ARTIFICIAL TEETH

We make twelve different patterns so as to suit any Dental Plate

Send for Samples.



No. 10. A favourite.

**BIDWELLS LTD. - AXMINSTER, Devon**

## *As a Scientific Man*

---

**Y**OU like to know that whatever you sell to the public is the finest for the public to use. From this point of view, have you compared the comparative merits of Tooth Powder as against Tooth Paste or solid dentifrice ?

Scientifically, Tooth Powder is best in that it is entirely free from the unnecessary excipient (usually glycerine or starch) used to bind its ingredients together.

Tooth Pastes have been found to pack on top of food in cavities or spaces between teeth for quite long periods and so actually preventing the saliva from performing its function.

Besides, whoever thinks of using glycerine or starch to clean glass or enamel ? If you have not tried it, it is an interesting and instructive experiment.

Tooth Powder is scientifically the correct form for a dentifrice, but some people not finding it quite as convenient favour Paste. Is that a satisfactory reason where the health and the cleanliness of the mouth are concerned ? NO ! a thousand times NO ! and we feel sure as a scientific man you will agree with us and wish to point out to your public why **EUCRYL TOOTH POWDER** must be better than any Paste.

---

---

**EUCRYL Ltd., Shirley, Southampton**

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# THE ORIGINAL VITAMINE MALT

A food accessory which should be given to all growing children, and certainly to all invalids.



*Facsimile of portion of label.*

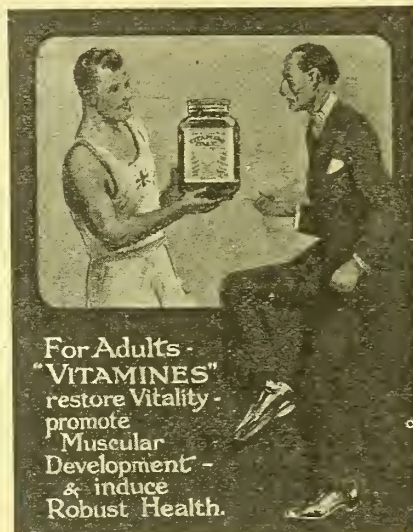
The Manufacturers of this important Food Accessory, for which the demand is daily increasing, would be glad to hear from Chemists who are getting enquiries, with a view to aiding them in their sales by circulation of literature, &c.

It is most important to remember that there are two preparations of VITAMINE MALT, one for human beings and another for animals, and when ordering, it is necessary to specify which is required.

The Manufacturers have interesting booklets, describing the action of Vitamines, and the distinctive part they play in metabolism.

Chemists can have supplies of these booklets with their names printed upon them as Agents. There are booklets for both the Human and Veterinary Preparations.

Special terms given to buyers of £5 value and upwards.



*Facsimile of portion of label.*

**Sole Manufacturers: R. SUMNER & CO. Ltd., 40 Hanover St., Liverpool.**

London Agents: Messrs. MAY, ROBERTS & CO., 9/11 Clerkenwell Rd., London, E.C.; Messrs. SANGERS, 42a Hampstead Rd., London.

## MAJAX

The ideal milk sugar for babies. We are having direct orders from all parts of the country. Why not participate in this business?

*For terms write to Proprietors*

**MAWSON & PROCTOR, LTD.**  
NEWCASTLE-ON-TYNE.

## Dr. DE JONGH'S

LIGHT BROWN

## COD LIVER OIL

IN IMPERIAL HALF-PINTS, 4/-

**ANSAR, HARFORD & CO., LTD.**  
182 Gray's Inn Road - - LONDON  
SOLE CONSIGNEES.

## ATKINSON & BARKER'S INFANTS' PRESERVATIVE

THE BEST AND SAFEST INFANTS'  
MEDICINE OF OVER 120 YEARS' STANDING.

Prices and Terms on application to **R. BARKER & SON, Ltd.**  
13 Wesley St., C.-on-M., MANCHESTER.

**DOES  
NOT  
CONTAIN  
any  
SCHEDULED  
POISON.**

# a suggestion

THE clean milk campaign launched a short time ago, and still going strong, is without question all to the public good. And equally without question it has not benefited those pharmacists who did not realise the opportunity presented them.

Fresh cows' milk, although now almost universally delivered in bottles, can never be absolutely free of germs often harmful to infants. It is up to all chemists to help themselves by this movement; we give you the opportunity in Milkal, the clean milk. For the reasons given on this page Milkal has long held first place in Hospitals and Infant Welfare Centres.

A reputation for selling only reliable goods is the foundation of your business; recommend Milkal and you establish a regular selling line.



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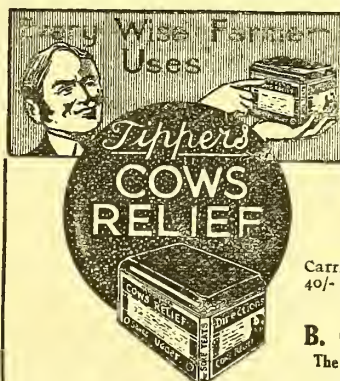
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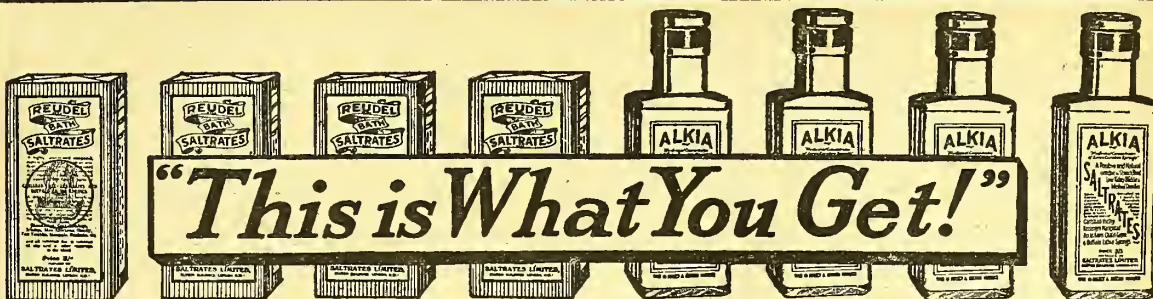
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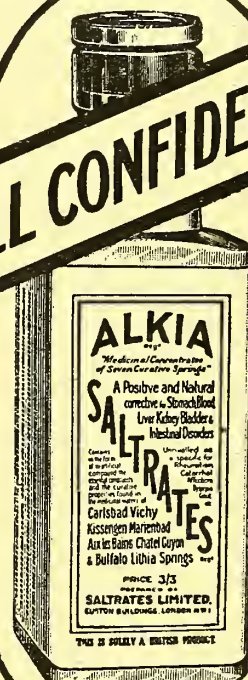
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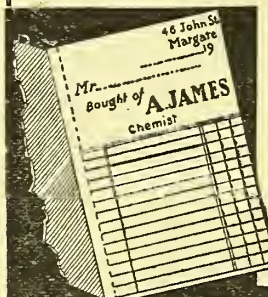
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presented 30 per cent. of the purest Norwegian Cod Liver Oil, of high vitamin content, in combination with "Wander" Dry Malt Extract, renowned for its digestive and nourishing qualities.

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*Issued in large glass jars, at 21/9 per doz.  
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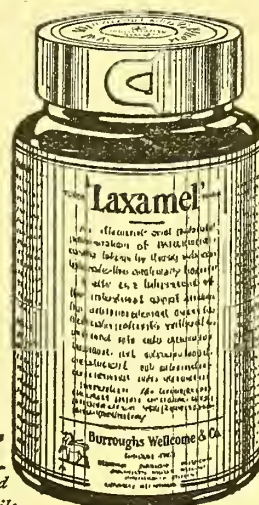


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"PROTARGOL"	"NOVASUROL"
"OPTARSON"	"THEOCIN"

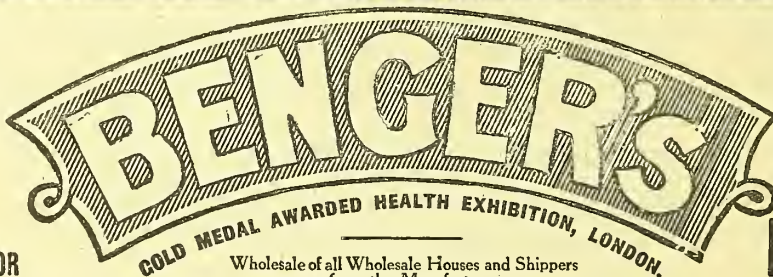


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The *Lancet*  
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"Mr. Benger's  
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INFANTS**



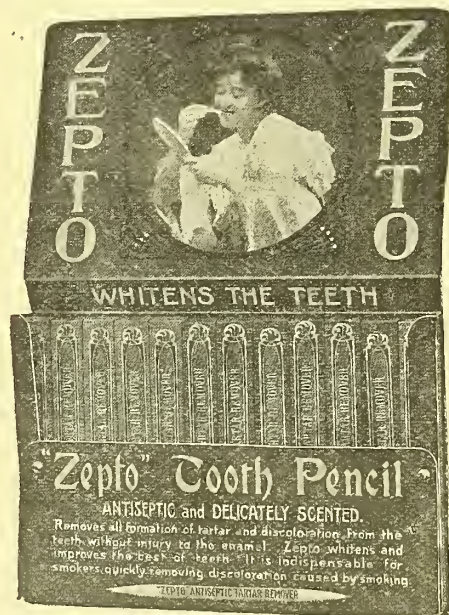
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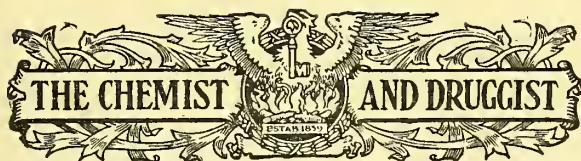
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THE CHEMIST AND DRUGGIST is in circulation and reputation the leading journal addressing the Chemical and Drug trades in the British Empire and other countries in the Old and New Worlds. It is the official organ of the Pharmaceutical Society of Ireland, the Chemists' and Druggists' Society of Ireland, and of other Chemists' Societies in the Overseas Dominions.

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 Prix de l'abonnement annuel: le journal une fois par semaine, et l'agenda une fois par an, 20s., franco.

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## Business Changes

MR. PERCY G. GAEN, chemist and druggist, has opened a business at 51 Water Street, Aberavon.

MR. H. W. JONES, chemist and druggist, has opened a business at 93 Neath Road, Briton Ferry.

BOOTS, LTD., have purchased the business of Mr. F. Holland, 91 Central Mostyn Street, Llandudno.

MR. W. FLACK, chemist and druggist, 20 Vivian Road, Wellingborough, has opened a pharmacy in Cambridge Street.

MR. P. J. BROWN, chemist and druggist, has opened a business at 66 Fortune Green Road, West Hampstead, London, N.W.6.

WHIFFEN & SONS, LTD. (incorporating George Atkinson & Co.), manufacturing chemists, London, S.W., are removing their Battersea offices to Carnwath Road, Fulham, S.W.6, on January 1.

## English and Welsh News

The Editor would be obliged if subscribers will send him marked copies of newspapers containing items of interest for insertion in this or other news sections.

### P.A.T.A. Council Election

**Retail Section.**—For the four vacancies there were six candidates. The votes polled were as follows:—Keall, J., 2,098; McNab, W. G., 535; Marns, T., 1,316; Marshall, H. H., 2,153; Oakley, H., 662; Rowsell, P. F., 2,103. The successful candidates are therefore Messrs. Keall, Marns, Marshall, and Rowsell.

**Wholesale Section.**—There were six candidates for the four vacancies—Ayrton, Saunders & Co., Ltd.; W. Edwards & Son; Raimes, Clark & Co.; Sangers; Southall Brothers & Barclay, Ltd.; W. Sutton & Co., Ltd. The following were elected:—Ayrton, Saunders & Co., Ltd.; W. Edwards & Son; Raimes, Clark & Co.; Sangers.

**Manufacturers' Section.**—There was no contest, the retiring members, Kutnow & Co., Ltd.; Newton Chambers & Co., Ltd.; Page Woodcock, Ltd.; and Thomas Powell, Ltd., being re-elected.

### Analysts Differ

At Stockton-on-Tees, on December 17, Robert M. Cooper, grocer, was summoned for having sold "black currant and aniseed sweets" containing no black currant juice. Mr. C. J. H. Stock, county analyst, said that the sweets contained chiefly coloured sugar flavoured with oil of anise. He could find no black currant juice. Mr. W. R. Briggs, for the defendant, stated that the manufacturers were William Clayton, Ltd., Hull. He called John C. Clarke, a workman employed by them, who declared that he made the sweets and put black currant flavouring in. Mr. Harry Thompson, F.C.S., analyst, Hull, said his analysis showed a percentage of 0.03 of black currant juice in the sweets. That amount was quite sufficient. The case was adjourned for an official analysis to be made.

### Contracts

The following tenders have been accepted by the bodies named:—

Isle of Wight Guardians.—A. Millidge & Son, chemists; S. Maw, Son & Sons, Ltd.; The "Sanitas" Co., Ltd.; Timothy White Co., Ltd.; Pratt & Co.; Robert Bailey & Son, Ltd.; drugs and sundries.

Reading Guardians.—Bradley & Bliss, Ltd., drugs and sundries.

### Liverpool

The annual meeting of the Liverpool Chemists' Association is fixed for January 21, at 8 p.m.

The illness of Mr. John H. Robinson took a rather serious turn, but he is now on the road to recovery.

Mr. Eric Beckett (Lieutenant, R.F.A.), Liverpool University, eldest son of Mr. F. Lloyd Beckett (Evans Sons Lescher & Webb, Ltd.), has passed the final examination of the Royal College of Veterinary Surgeons.

The Liverpool Pharmacy Club's annual meeting, on January 23, will be followed by a hot-pot supper. For President, the Council has nominated Miss M. C. Dodd (Wallasey), and for Vice-President, Mr. F. A. Boggiano (retiring President).

### Miscellaneous

**IN THE COURTS.**—At Nottingham Guildhall, on December 18, Phyllis E. Frost, Woodborough Road, was awarded £25 as damages against Frederick W. Hemming, chemist and druggist, Middle Hillgate, Stockport, for breach of promise.

**BRITISH EMPIRE EXHIBITION, 1925.**—Among the colonies to be represented at the British Empire Exhibition, 1925, the opening date of which has not yet been announced, are Australia, Bermuda, Canada, Jamaica, Mauritius, Newfoundland, and South Africa. With the approval of his Majesty the King, the Duke of York has accepted an invitation to succeed the Prince of Wales as President.

**POISONINGS.**—The West London coroner held an inquest, on December 18, on the body of Mr. Percy W. Spaul, M.R.C.S., L.R.C.P., Stanwick Road, W., who was found dead in bed on December 16. Evidence showed that Mr. Spaul had been depressed and had been attended by a fellow-practitioner. A bottle that had contained hydrocyanic acid was found, almost empty, by the side of the bed, and a *post-mortem* examination revealed the presence of the acid in the organs. An "Unsound mind" verdict was recorded.—Two other suicides by taking hydrocyanic acid are reported, and two in which potassium cyanide was used.

**SALES AT CLINICS.**—At a recent meeting of the Crayford Urban Council, the health committee recommended that cod-liver oil and malt should be offered for sale at the Council's clinics. Councillor Clayton, moving the rejection of the recommendation, said that the Council ought not to encourage shopkeeping in competition with local tradesmen. Councillor Ball said that the advantage of having these things at the clinic was that mothers were more likely to purchase them there than go specially to a shop for them. Councillor Clayton pointed out that there were some attending the clinics who could well afford to pay the ordinary retail prices. The tradesmen who helped to provide the clinic out of the rates were deserving of consideration. The subject was referred back to the committee for reconsideration.

**INQUEST.**—During an inquest at Kingston-on-Thames, on December 20, on the body of a boy named George E. Stott, whose death was eventually found to be due to "natural causes," the lad's father stated that his son was sent home from hospital on the understanding that insulin treatment, which he had been receiving, would be continued by a doctor. No doctor, however, would undertake the case, and the district nurse was called in to give the injections. Nurse Woollaston gave corroborative evidence. The coroner said the nurse ought not to have taken the case, as insulin treatment needed to be given very carefully under a doctor's supervision. The Nurse: I cannot see that I did anything wrong. The Coroner: You are assuming that you are entitled to treat people with insulin if you like, but you have no right to undertake duties which should be carried out by a doctor.

**UNAUTHORISED POSSESSION CASE.**—At Bow Street Police Court, London, on December 18, Frederic Schiro-Kauer, a German, described as a chemist, was charged with being in unauthorised possession of morphine. A detective-sergeant stated that on the previous day, in consequence of a telephonic message, he went to a chemist's shop in Shaftesbury Avenue and saw a bottle of morphine handed over the counter to a District Messenger boy. He followed the boy to the Arundel Hotel, where the defendant was lying in bed. In reply to witness's questions the defendant said that he obtained a prescription for the drug a few days previously from Dr. Moss, Charing Cross Road. Inquiries had revealed that the signature on the prescription (produced) was not that of Dr. Moss. The defendant told the magistrate that he was a German doctor, and came to this country recently on business connected with the manufacture of morphine. A remand was ordered.

## Irish News

### Brevities

The Wexford Board of Guardians has decided to obtain supplies of drugs from the Southern Drug Co., Wexford, in cases in which the company's price is as cheap as that of the Local Government Department lists.

At an inquest, on December 16, in the case of Michael McConville (38), farmer, Rathfriland, who died under mysterious circumstances, the jury returned a verdict that deceased died from strychnine poisoning, and were of opinion that deceased took the strychnine in mistake for headache powder, which he was in the habit of taking.

### Dublin

Sir Thomas Robinson, Ph.C., at a meeting in Dublin on December 20, of the Dublin Branch of the United Commercial Travellers' Association of Great Britain and Ireland, referring to taxation in the Free State, said that the Government required to explore every possible source of revenue to meet the tremendous cost of running the Government of the Free State. Their budget was out of all proportion to that of other countries, whose government was carried out under similar conditions, and had similar populations. Five shillings was a preposterous income tax in a country at peace with the world. The sixpenny tax on parcels was oppressive, and he hoped the Government would review it in the new year and take it off. Referring to the Government's Protection policy, he said a tax enforced to help a foolish industry was a wrong tax, and he asked the heads of the State to consider whether such a tax would not hurt more than the free admission of goods.

## Scottish News

### Brevities

Ross-shire County Council has granted a licence under Section 2 of the Poisons and Pharmacy Act, 1908, to Mr. D. Morrison, Barvas.

Dundee chemists have decided to remain open all day on December 24 and on December 31, and to close on Christmas Day at 1 p.m. and all day on New Year's Day.

Miss M. F. Lawrence, second daughter of Mr. S. Lawrence, chemist and druggist (Lawrence & Shepherd, chemists), Oban, was a successful candidate at the recent examination in midwifery held in London.

At a meeting of the Joint Weights and Measures Act Committee of Stirling Town Council and Stirling City Council, recently, it was agreed to represent to the Board of Trade that legislation be passed making it illegal to sell a "reputed" pint or quart instead of the Imperial measures when a pint or quart is ordered.

### Edinburgh

Mr. William Duncan, Ph.C., Royal Dispensary, has retired.

"This has been a record year for uncalled-for prescriptions," writes a correspondent.

T. & H. Smith, Ltd., manufacturing chemists, inform us that their office and warehouse will be closed on December 25 and on January 1, 2 and 3.

Many excellent window-displays are to be seen at local pharmacies, particularly in the suburbs. That of Mr. G. W. Brown, Leith Walk, is highly attractive.

### Glasgow

There was an outbreak of fire at the works of Turnbull & Co., chemical manufacturers, recently. The damage is estimated locally at £500.

During alterations to the premises of Mr. H. W. Thomas, Argyle Street, recently, a skull was discovered. According to the medical officer of health, the skull is apparently human and very old.

The third annual dinner of the Association of the College of Optics took place recently, Mr. J. A. Brackenridge, President of the Association, presiding over more than 100 members and friends. The dinner was followed by a dance.

## Gazette

### Bankruptcy Acts

#### RECEIVING ORDER

WATSON, G. H., 133 Fenchurch Street, London, E.C., and lately at 107 Bethune Road, Stoke Newington, chemical manufacturer.

#### RECEIVING ORDER AND ADJUDICATION

HANDLEY, H., 68 High Street, Andover, chemist.

## New Companies and Company News

**P.C.** means Private Company and **R.O.** Registered Office.

**HORMONES AND CHALONES, LTD. (P.C.).**—Capital £3,000. Objects: To carry on the business of importers of and dealers in glandular medicinal preparations and organotherapeutic substances, chemists, druggists, etc. Solicitor: R. Walker, 32 Watling Street, London, E.C.

**W. R. LUSCOMBE, LTD. (P.C.).**—Capital £5,000. Objects: To acquire the business of an importer, exporter and merchant of minerals, pigments, colours and chemicals now carried on by W. R. Luscombe at 2 Fen Court, Fenchurch Street, E.C. The directors are: W. R. Luscombe and H. E. Rudge. R.O.: 2 Fen Court, Fenchurch Street, London, E.C.3.

**LAWRENCE (NEWPORT), LTD. (P.C.).**—Capital £400. Objects: To carry on the business of chemists, druggists, shipping chemists, drug-store proprietors, patent medicine proprietors and vendors, stationers, wine and spirit merchants, dealers in photographic supplies, etc. The first directors are: G. P. Lawrence and E. G. Lawrence. R.O.: 69 Alexandra Road, Newport, Mon.

**PHARMACOPŒIAN FORMULÆ, LTD. (P.C.).**—Capital £6,000. Objects: To carry on the business of chemists, druggists, chemical manufacturers and dealers, drysalts, importers and manufacturers of and dealers in pharmaceutical and medicinal preparations and their constituents, etc. The directors are: J. A. Tinling and J. C. B. Tinling. R.O.: Vernon House, 40 Shaftesbury Avenue, London, W.1.

**BIRMINGHAM CHEMICAL CO., LTD (P.C.).**—Capital £10,000. Objects: To acquire the business of the Birmingham Chemical Co., as hitherto carried on at 26 Grant Street, Birmingham, and to carry on the business of analytical chemists and drysalts, manufacturing chemists, etc. The permanent directors are H. D. Podmore (managing director) and S. Podmore. R.O.: 26 Grant Street, Birmingham.

**MARTYN'S STORES, LTD.**—The directors have declared a dividend of 10 per cent. upon the ordinary shares.

**BEECHAM ESTATES AND PILLS, LTD.**—At a meeting of the directors held on December 11 it was resolved that an interim dividend at the rate of one shilling per share be paid upon the ordinary shares, this dividend to be payable on January 1, 1925.

**BRITISH DYESTUFFS CORPORATION.**—Sir William Alexander, M.P., has resigned his position as chairman and director of the British Dyestuffs Corporation, and Lord Ashfield, who resigned as a Government representative on the board of the company, has been appointed an ordinary director and chairman of the board. Sir Alfred Mond is to take Lord Ashfield's place as one of the Government representatives on the Board.

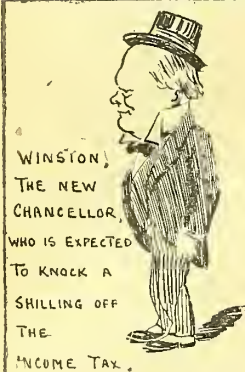
**JOSEPH NATHAN & Co., LTD.** (proprietors of "Glaxo").—The directors announce that cabled information indicates that the trading for the year ended September 30, 1924, has, subject to audit, resulted in a net profit of £31,415 (compared with £11,486 last year), which, with the balance brought forward, will show a balance to the credit of profit and loss account of £42,128. The placing on the market on October 1 of "Glaxo-ovo" involved heavy expenditure, which, it is stated, must continue. This being so, the directors, in order to maintain the finances in a liquid state, have decided not to resume dividends on the preference shares at the present time. The annual meeting will be held in February or March, and it is anticipated that it will then be possible to announce the resumption of the payment of the "A" preference dividends. The consideration of any payment of dividends in respect of the preferred ordinary shares must be deferred until after the end of the present financial year.

**MAGADI SODA CO., LTD.**—In the Chancery Division, on December 19, Mr. Justice Eve heard a petition to sanction a scheme of arrangement presented by the Magadi

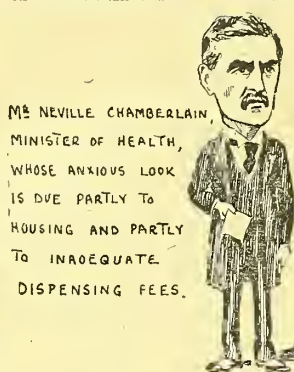
Soda Co., Ltd., in which Mr. Gavin Simmonds, K.C., appeared for the company and Mr. Bennett, K.C., for debenture holders who supported the scheme, which was opposed by Mr. A. P. Pennell, a deferred shareholder. The company, said Mr. Simmonds, was incorporated in 1911 with a capital of £1,312,500, made up of 1,125,000 ordinary shares of £1 each and a similar number of deferred shares of 1s. each. The company acquired a 99 years' lease from the Government of the East African Protectorate, and this lease was subject to forfeiture in certain events. The lease did, in fact, become forfeitable. In 1919 there was an issue of £500,000 six per cent. first mortgage debentures, secured by a trust deed of May 16, 1919, of which the British Trusts Association, Ltd., were the trustees. Provision was made for converting these debentures into ordinary shares, and to provide for that contingency the capital was increased by £50,000. In September 1922 a second debenture was issued in favour of Lloyds Bank to cover an overdraft. When the winding-up petition was presented there was owing on that second debenture £200,000 all but a few pounds. In 1923 default was made in payment of the interest on the first mortgage debentures, and a debenture-holder's action was commenced and a receiver appointed. Negotiations were commenced for the provision of further capital with a view to a scheme being arrived at. A winding-up petition stood over from time to time, as an order might be prejudicial to the negotiations, but a winding-up order was eventually made on April 8, 1924, and the senior official receiver became the liquidator of the company. There was a three-quarters majority in favour of the scheme which was formulated at the meetings called to consider it. The scheme provided that the existing company should be wound up and a new company incorporated with a share capital of £830,000, divided into 250,000 six per cent. first pref. shares of £1, 1,320,000 second six per cent. pref. shares of 5s., 600,000 12½ preferred ordinary shares of 5s., and 100,000 ordinary shares of £1. The £250,000 pref. shares were to be applied as far as necessary towards satisfying the unsecured creditors and the second debenture holders. The ordinary and deferred shares would have certain rights in the six per cent. second pref. shares, and the ordinary shares would be subscribed for by Brunner Mond & Co. It was provided that the company was to create an issue of £500,000 first debentures at six per cent., and these were to be repayable by a sinking fund on December 1945, or earlier, but not before 1929, at the rate of 105 for every 100. The trustees were to be the British Trusts Association, Ltd. Each first debenture holder in the old company was to receive debentures in the new one for the same amount as his present holding, but all arrears of interest on the old debentures were to be cancelled. The second debenture holders in the old company and each unsecured creditor were to receive first pref. shares in the new company for 75 per cent. of the old company's indebtedness. Each ordinary shareholder of the old company was to receive one second pref. share in the new company for each ordinary share in the old company, but his new shares would be 5s. instead of £1. Each deferred shareholder in the old company was to receive one second pref. share in the new company as fully paid for every 20 deferred shares in the old company. The deferred shares were 1s. each against £1 ordinary shares, and therefore the two classes of shareholder were treated alike. Counsel said the deferred shareholders had been extremely generously treated. Brunner Mond & Company were to be allotted at par 100,000 ordinary shares in the new company, to be paid for in cash and such number of preferred ordinary shares as should not be taken up by the second pref. shareholders. On Saturday Mr. Pennell criticised the scheme as being unfair to the deferred shareholders. Mr. Simmonds said he was instructed to say that it was the deliberate opinion of the official receiver that he had got the best terms he could from Brunner Mond. His lordship said the short answer to the objections raised to the scheme was that it had been approved by substantial majorities of each of the classes of persons affected by it. He would approve the scheme subject to this: that the question of who were to be the persons appointed trustees for the debenture holders would be settled by him at a later date.

## Pictorial Review of the Year

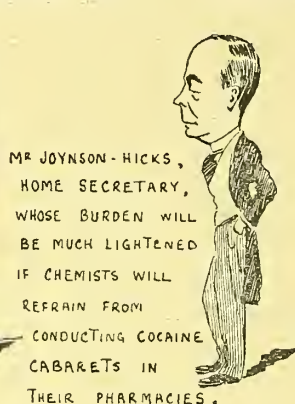
By Granville Shaw, Ph.C.



WINSTON,  
THE NEW  
CHANCELLOR,  
WHO IS EXPECTED  
TO KNOCK A  
SHILLING OFF  
THE  
INCOME TAX.



MR NEVILLE CHAMBERLAIN,  
MINISTER OF HEALTH,  
WHOSE ANXIOUS LOOK  
IS DUE PARTLY TO  
HOUSING AND PARTLY  
TO INADEQUATE  
DISPENSING FEES.



MR JOYNSON-HICKS,  
HOME SECRETARY,  
WHOSE BURDEN WILL  
BE MUCH LIGHTENED  
IF CHEMISTS WILL  
REFRAIN FROM  
CONDUCTING COCAINE  
CABARETS IN  
THEIR PHARMACIES.



MR. A.J. CHATER, LATE  
ASSISTANT SECRETARY OF THE  
SOCIETY, WHO CARRIES WITH  
HIM INTO RETIREMENT THE  
BEST WISHES OF US ALL.



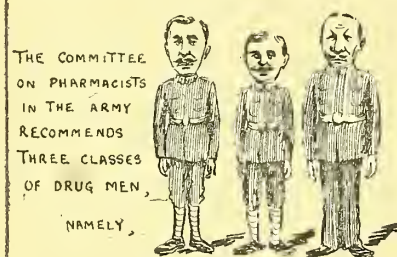
MR  
PILKINGTON  
SARGEANT  
BUZ FUZ  
INDICTS  
STUDENTS OF  
PHARMACY FOR  
DEVOTING TOO MUCH  
TIME TO THE STUDY OF



RADIOLOGY!

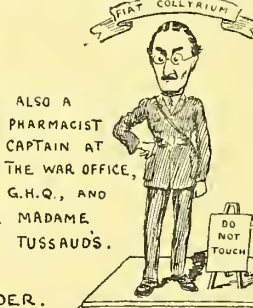


MR NEATHERCOAT, WHO  
UNSUCCESSFULLY CONTESTED THE  
GOWER DIVISION AT THE  
GENERAL ELECTION.



THE COMMITTEE  
ON PHARMACISTS  
IN THE ARMY  
RECOMMENDS  
THREE CLASSES  
OF DRUG MEN,  
NAMELY,

PHARMACIST, DISPENSER, AND  
COMPOUNDER.



ALSO A  
PHARMACIST  
CAPTAIN AT  
THE WAR OFFICE,  
G.H.Q., AND  
MADAME  
TUSSAUDS.



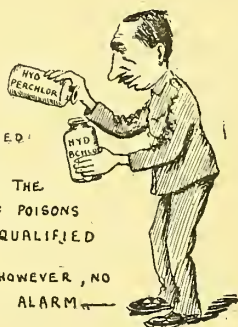
THE ARMY COUNCIL ARE NOT  
SO FASTIDIOUS AS



THE STATESMEN OF 1868!

WHO REALISED  
THE RISKS  
INVOLVED IN THE  
HANDLING OF POISONS  
BY THE UNQUALIFIED

THERE IS, HOWEVER, NO  
CAUSE FOR ALARM.



THE BRITISH  
SOLDIER HAS A  
MAGNIFICENT  
CONSTITUTION!



Granville Shaw

# The Progress of Pharmacy

## AND ALLIED SCIENCES

### PHARMACY

**Menthol Emulsion.**—For internal administration an emulsion of menthol can be prepared by mixing 0.03 to 0.05 gram of menthol, 5 grams of tincture of quillaia, and 10 grams of glycerin, then adding gradually sufficient water to produce 125 c.c. ("Pharmazeutische Zentralhalle," November 13, 1924.)

**Preservation of Leeches.**—A. Stouffs ("Journal de Pharmacie de Belgique," September 14, 1924) reports that he has found the addition of 2 to 3 grams of dilute hydrochloric acid and 0.05 gram of pepsin to 1,000 c.c. of spring water to be an excellent expedient for preventing mortality in leeches. In the summer it is sufficient to renew the medium once or twice a week.

**Metallic Mercury in Suspension.**—The therapeutics of an unusual suspension of mercury has been discussed ("Journal of the American Medical Association," II, 1924, 523), namely, a fine trituration of metallic mercury with glucose in the ratio of about one to five. The authors conclude that the risks as an injection are too great to justify at present the therapeutic use of this suspension.

**Glycerinated Chloroform.**—Many French physicians prescribe glycerinated chloroform, which is given in a hot infusion, in preference to chloroform water, considering glycerin to be a better vehicle for the internal administration of chloroform. Since glycerin is insoluble in chloroform, A. Manseau ("Union Pharmaceutique," October 1924) suggests the following formula:—

Glycerin	...	...	...	100 grams
Chloroform	...	...	...	5 "
Distilled water, to produce	...	...	...	1,000 "

**Unna's Paste.**—P. Runge ("Apotheker-Zeitung," November 15, 1924) recommends the following formula for the preparation of Unna's soft zinc paste:—

Calcium carbonate	...	...	...	24 grams
Zinc oxide	...	...	...	24 "
Linseed oil	...	...	...	24 "
Solution of lime	...	...	...	20 "
Wool fat	...	...	...	8 "

The solution of lime is added, in small portions, to the mixture of the other ingredients.

**Administration of Castor Oil.**—In administering castor oil to children, H. Leclerc ("Presse Médicale," October 15, 1924) recommends that it should be given in the form of an emulsion with syrup of acacia. The following mixture is prepared:—

Castor oil	...	...	...	20 grams
Syrup of acacia,	...	...	...	
Syrup of raspberries	...	...	aa.	15 grams
Oil of lemon	...	...	...	1 drop

Shake vigorously. The syrup of acacia of the French Codex is a solution of gum acacia, 100 grams; sugar, 560 grams; water, 340 grams.

**Iodised Chloroform Water.**—To increase the antiseptic action of chloroform, E. Crouzel ("Répertoire de Pharmacie," October 10, 1924) recommends the following solution:—

Saturated chloroform water...	...	...	1,000 c.c.
Tincture of iodine	...	...	20 drops

It is administered in doses of two to six table-spoonfuls a day. If it is desired to have a non-alcoholic preparation, iodine, or colloidal iodine, may be employed in the place of the tincture of iodine, adding sufficient to produce a solution containing two parts of iodine in 1,000 parts.

**Phosphorus Paste.**—The following formula for phosphorus paste is recommended in "Farmaceutisk Revy," November 22, 1924:—

Phosphorus	...	...	...	25 grams
Lard	...	...	...	50 "
Sugar	...	...	...	225 "
Flour	...	...	...	500 "
Borax	...	...	...	50 "
Water	...	...	...	500 "

Dissolve the sugar in boiling water and add the phosphorus. When the latter has melted, add, in the following order, the flour, borax and lard.

**Gelatin Base for Suppositories.**—For inclusion in the new edition of the German Pharmacopoeia, at present in course of preparation, A. Ulbrich ("Pharmazeutische Zeitung," October 22, 1924) suggests the following formula for a gelatin base for suppositories:—

Gelatin	...	...	...	10 grams
Mucilage of gum acacia	...	...	...	5 "
Glycerin	...	...	...	15 "
Water	...	...	...	70 "

When oil of theobroma is used as the base, the author recommends first rubbing down the prescribed ingredients with a mixture of water 5, alcohol 2, and glycerin 3 grams, then adding the molten theobroma oil.

**Iron-Heparin.**—W. Grüning ("Pharmazeutische Zentralhalle," No. 31, 1924) advocates a clinical trial of a compound of iron with the nucleoprotein of liver, prepared by the following method: 1,000 grams of sheep's liver is minced, and extracted with 1,000 c.c. of cold water. After standing for twelve hours, strain through cloth, which allows the liver cells to pass but keeps back the connective tissue, and wash the residue with 500 c.c. of water. To the collected liquids add 200 c.c. of a saturated solution of sodium chloride and 120 c.c. of dialysed solution of iron oxychloride. Warm the mixture to 45°-50° on the water bath, and precipitate with about 30 c.c. of acetic acid (30 per cent.). Collect the precipitate on a cloth, wash with water, and dry at a temperature not exceeding 50°. By this process about 78 to 81 grams of a compound containing 5.1 per cent. of iron is obtained.

**Iodoform Oil.**—A. Labat ("Union Pharmaceutique," October, 1924) gives the following method for the preparation of an oily solution of iodoform, largely prescribed in French hospital practice:—

Iodoform	...	...	...	4 grams
Creosote	...	...	...	4 "
Ether	...	...	...	25 "
Olive oil	...	...	...	75 "

The iodoform should be dissolved in the oil at a gentle heat, whereupon the mixture of ether and creosote is added; this procedure ensures the production of a golden-yellow solution, whereas if the creosote and iodoform are dissolved in the ether and this solution added

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to the oil, the resulting product exhibits a more or less brownish colour, depending on the time taken to dissolve the iodoform and on the action of light in liberating iodine.

**Patta-Pectin.**—Recently a substitute for tragacanth, for general purposes, has been placed on the market by E. Tscharnke, Erfurt, under the name of "Patta-Pectin." According to the manufacturer, it consists of pectin obtained from tropical fruits, and its solution is capable of emulsifying oils, resins, hydrocarbons, etc. A sample of the preparation was analysed by L. Rosenthaler ("Schweizerische Apotheker-Zeitung," October 18, 1924). It occurs as a coarse, whitish powder; shaken with 50 parts of water it forms a viscid mucilage. Water content, 11.8 per cent.; ash, 2.18 per cent.; saponification number, 38.1; nitrogen content (Kjeldahl), 0.176 per cent. With sulphuric acid it yields after one hour a light purple-coloured solution. It does not contain any starch, oxydases or peroxydases; yields no coloration with iodine or with ferric chloride. A one per cent. aqueous solution is acid to litmus; on the addition of a small amount of solution of sodium hydroxide it becomes viscid, but liquefies on the further addition of sodium hydroxide. On heating this solution no coloration takes place, in contradistinction to tragacanth. It does not reduce Fehling's solution.

**Milk Modifiers.**—Elizabeth Gates and W. W. Billing ("Journal of the American Pharmaceutical Association") have experimented with the various salts which are used to modify the curdling of milk used for feeding infants. Quick curdling produces hard, tough clots, while delayed curdling results in a fine soft mass. The ideal milk modification mixture should contain (1) sugar to make up deficiency in cows' milk, (2) salts to increase sodium and potassium content, (3) partially neutralise excess acidity, and (4) contain a curd modifier. Of curd modifiers, the best seem to be sodium bicarbonate, sodium citrate, and lime water, the last being least practical, while sodium bicarbonate has an advantage over the citrate that it tends to reduce acidity. The ingredients of most milk modifiers on the market (calcium carbonate and calcium lactophosphate) are actually contra-indicated. Sodium phosphate gave satisfactory results in delaying time of curdling. From theoretical consideration and laboratory experiments the authors consider the following formula to be that best adapted for conditions ordinarily met with on feeding infants with cows' milk:—

Lactose ... ..	35 grains
Sodium chloride ... ..	$\frac{1}{2}$ grain
Sodium bicarbonate ... ..	$\frac{1}{2}$ grain
Sodium phosphate ... ..	$\frac{1}{10}$ grain
Potassium bicarbonate ... ..	$\frac{1}{12}$ grain

The above quantities are for four ounces of milk, which, of course, may be subsequently diluted to individual requirements.

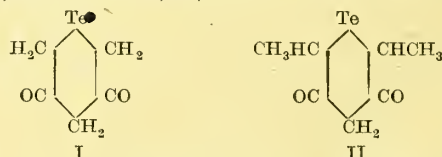
**Saccharated Iron Oxide.**—E. Winberg ("Farmaceutisk Revy," November 22, 1924) gives directions for the preparation of two forms of saccharated iron oxide with a high content of iron. The liquid form, containing 5 per cent. of iron, is obtained by adding a solution of 500 grams of sodium carbonate in 3,000 c.c. of water to a mixture of 500 grams of solution of iron chloride (containing 10 per cent. of iron) and 3,000 c.c. of water. The precipitate is collected and washed with water until free from chloride, and without drying, mixed with 35 grams of potassium tartrate, 20 grams of glycerin, and 150 grams of sugar. This mixture is then warmed on a water bath until it yields a product which is soluble in water, whereupon 70 grams of alcohol (87 per cent.) and 3 grams of aromatic essence (vanillin 5 grams, alcohol 90 grams, oil of orange peel 5 grams) are added, and the amount completed to 1,000 grams by the addition of water. The alcohol may be omitted, in which case 1 gram of sodium benzoate should be added. A powder containing 10 per cent. of iron is prepared by the inter-

action, as above, of 1,000 grams of solution of iron chloride and 1,000 grams of sodium carbonate. The precipitate, after washing, is mixed with 40 grams of potassium tartrate and 400 grams of sugar, and after warming until it is clearly soluble in water, it is desiccated, powdered and sufficient sugar added to produce 1,000 grams.

**The Administration of Nauseous Drugs.**—In a communication dealing with the methods adopted to mask the nauseous taste of certain drugs, C. Bachem ("Münchener medizinische Wochenschrift," September 26, 1924) draws attention to the possible uses of certain less known preparations which possess the property, in combination with certain drugs, of abolishing the unpalatable taste of the latter. The author relates the results of tests undertaken with mono- and dihydrogen sodium phosphate, liquid extract of *Eriodictyon glutinosum*, or *E. californicum* (Yerba Santa), raspberry essence, and gymnemic acid obtained from the leaves of *Gymnema silvestre*, N.O. *Asclepiadaceæ* indigenous to India and Africa. The author established that a 10, in some cases a 20, per cent. solution of monohydrogen sodium phosphate (recesal) effectively masks the taste of a number of bitter drugs. In this respect it exhibits a selective action, the effect being particularly marked when the solution is used in conjunction with quinine hydrochloride (1:500), strychnine nitrate (1:10,000), morphine hydrochloride (1:100), and infusion of digitalis (1:100). On the other hand, even a 20 per cent. solution of monohydrogen sodium phosphate failed to mask the taste of potassium bromide, tincture of aloes and tincture of gentian. While the tests with fluid extract of *Eriodictyon* failed to yield satisfactory results, the use of a tincture (1:10) proved in many instances highly successful. On painting the tongue with the tincture, it was possible to abolish almost completely the bitter taste of quinine hydrochloride, strychnine nitrate, potassium iodide, antipyrin, tincture of aloes, and magnesium sulphate. The experiments with a 1 per cent. solution of gymnemic acid showed that this compound acts solely in conjunction with solutions of sugar, by abolishing the sweet taste of the latter, and therefore does not come into consideration for practical purposes.

### BACTERIOLOGY

**Tellurium Germicides.**—The bactericidal action of the *cyclo*-telluro-pentane-3-5-diones is discussed by G. T. Morgan and his co-workers ("Journal of the Society of Chemical Industry," Oct. 3, p. 304). The bactericidal value attains a maximum activity with two methyl groups in the 2-6 or ortho positions to the tellurium atom. Their toxic effect is more marked in bacteria than on protozoa. The simplest of the series is *cyclo*-telluro-pentane-3-5-dione (I). The 2-6 dimethyl-*cyclo*-telluro-pentane-3-5-dione (II) is bactericidal at concentrations as low as 1 in 10,000,000 to 1 in 40,000,000:—



The 2-4 dimethyl-*cyclo*-telluro-pentane-3-5-dione is readily soluble in water, and has been used successfully in cystitis and in eye infections. Despite the poisonous nature of the compounds which induce hæmaturia, there is sufficient margin between the lethal and bactericidal values to permit their use.

**Fermentation of Organic Salts** provides an additional means of distinguishing between several types of the difficult group of *Salmonella* organisms according to H. C. Brown, J. T. Duncan, and T. A. Henry ("The Journal of Hygiene," October 15, 1924). The new method consists of a precipitation test conducted on 1 per cent.

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organic salt in peptone water (1 per cent. bactopeptone), which after inoculation is incubated at 37° C. for forty-eight hours, after which saturated lead acetate solution is added. A voluminous white flocculent precipitate indicates no change, while when decomposition has occurred a small, heavy granular deposit, made up chiefly of lead carbonate, settles at the bottom of the culture tube. Whereas sugar reactions differentiate only from types of *Salmonella*, fermentation of salts distinguishes seven out of eleven of these. The following tables summarise these reactions:—

	Citrate	d-tartrate	l-tartrate	m-tartrate	Fumarate	Mucate
(1) <i>B. paratyphosus</i> A	—	—	—	..	..	—
(2) <i>B. paratyphosus</i> B	+	—	+	..	..	+
(3) <i>B. paratyphosus</i> C	+	+	—	..	—	—
(4) <i>B. suipestifer</i>	+	+	—	..	+	—
(4) <i>Salmonella</i> type G.	+	+	—	..	+	—
(5) Type, Reading	+	+	—	..	+	+
(6) Type, Mutton	+	+	+	+	..	+
(6) Type, Newport	+	+	+	+	..	+
(6) Type, Binns	+	+	+	+	..	+
(7) Type, Stanley	+	+	+	—	..	+
(76) <i>B. enteritidis</i> , Gärtner	..	+	±	±	±	+

The numbers indicate the grouping according to organic salt fermentation. The technique in the case of mucate is modified by the addition of 0.55 c.c. of glacial acetic acid along with 0.6 c.c. of lead acetate solution to 5.0 c.c. of mucate solution. With citrate medium 0.4 c.c. of lead acetate solution is used only, which is increased to 0.6 c.c. alone with tartrate and fumarate. Andrew's and Neave's differential sugar fermentations are:—

	Xylose	Arabinose	Dulcitol	Inositol
<i>B. paratyphosus</i> A	—	+	+	—
<i>B. paratyphosus</i> B	+	+	+	+
<i>B. paratyphosus</i> C	+	+	+	—
<i>B. aertrycke</i> , Newport	+	+	+	—
<i>B. aertrycke</i> , Mutton	+	+	+	+
<i>B. enteritidis</i> , Gärtner	+	+	+	—
<i>B. columbensis</i>	+	—	+	—
<i>B. suipestifer</i>	+	—	—	—

The organic salts, which are relatively inexpensive, form an easy means of distinguishing between pathogenic and certain non-pathogenic vibrios and between certain members of the *Coli-aerogenes* group. It also differentiates *B. diphtheriae* from Hofmann's bacillus, and reacts differently in the cases of *B. maltei* and *B. whitmorei*.

**Bactericidal Action of Quinones.**—The results of further researches on the bactericidal action of quinones and allied compounds are recorded by G. T. Morgan and E. A. Cooper, in collaboration with A. W. Burt and F. J. Corby ("Journal of the Society of Chemical Industry," December 12, 1924). A determination of the phenol coefficients of *p*-benzoquinone and toluquinone by the Chick-Martin method showed that the bactericidal power increases relatively to that of phenol when the period of disinfection is extended, and of sixteen quinones examined, *p*-benzoquinone was found to be the most powerful. With regard to the effect of substitution, the authors established that the chloroquinones are more active as germicides than the alkyl derivatives (or homologues) of *p*-benzoquinone. In some tests in which *B. pyocyaneus* was used, the following coefficients were obtained: Benzoquinone, 15.6; toluquinone, <4.3; *m*-dichloroquinone, 5.1. The quinones, particularly *p*-benzoquinone, have been shown to react readily with proteins and allied substances. Gelatin, when immersed in a solution of *p*-benzoquinone, becomes permanently red and insoluble in water. On the other hand, gelatin exposed to toluquinone solutions, although turning red, is not rendered insoluble until a week has elapsed, whilst xyloquinone has no effect on gelatin even after eight months. It would appear that some definite chemical change associated with the tautomeric properties of the quinones underlies their bactericidal and colour-inducing activities, and that other reactions of

lesser importance accompany this fundamental process, and thus obscure the significance of the quantitative data. The differences in the bactericidal powers of  $\alpha$ - and  $\beta$ -naphthaquinones were found to be reflected in their colour reactions with proteins, the  $\alpha$ -quinone producing a light reddish-brown colour with gelatin and albumin, whilst the  $\beta$ -isomeride yielded a dark brown colour. Chloranilic and bromanilic acids behaved differently from quinones towards proteins, only producing a reversible red coloration with gelatin. Being phenols, they also caused precipitation of the protein as an opaque mass. Monochloro-, *m*-dichloro- and trichloro-quinones gave red colorations with gelatin and albumin, whilst *p*-dichloro-, *p*-dibromo- and camphor-quinones had no action. The observations as a whole point to a correspondence between germicidal powers and colour-inducing properties. The authors are of opinion that their results as a whole support the view that the high bactericidal power of *p*-benzoquinone is associated with its property of dynamic isomerism, nascent reactive molecules being liberated in its aqueous solutions. Certain halogenated quinones, however, are more efficacious as germicides than the alkyl derivatives, although they exhibit tautomerism to a lesser degree. This exceptional behaviour is probably due to an enhancement in bactericidal power resulting from the combined halogen atoms present in the molecules. However, the bactericidal power of the quinones is greatly reduced by the presence of organic matter, e.g., peptone, serum, urine. Consequently, the comparatively high concentrations of the quinones necessary for disinfection in the presence of organic matter would seem to preclude the possibility of applying these substances as internal germicides in man.

### BOTANY

**Plant Growth in Artificial Light.**—"Nature" (November 15) summarises results obtained in America with plants illuminated by electric gas-filled lamp furnishing 300- to 1,500-foot candles. The most striking effect of continuous illumination with natural and artificial light is hastening of time of flowering (on the average eight days early). Large quantities of starch accumulate in the leaves, but the plants were robust and less liable than usual to ravages of fungus. The article points out that the discouraging results of previous experiments probably lies in the fact that it is only within recent years that the great disparity between natural and artificial light has been understood. Direct sunlight in summer may be 10,000-foot candles, and a value of several thousand-foot candles is quite usual with a cloudy sky. With artificial light a general illumination of 10-foot candles would be considered exceptionally bright, the marvellous adaptation of the eye enabling utilisation of extremes as low as 3-foot candles, the average of artificial lighting. But apparently plants do not respond below several hundreds of foot candles, thus strawberry did not bloom below 500-foot candles, but set fruit as 1,500 or more.

### AGRICULTURAL CHEMISTRY

**Cotton-cake Poisoning.**—Erich W. Schwartz and Carl L. Alsberg ("U.S. Journal of Agricultural Research," 23, p. 173), find that the toxicity of cotton seed kernels would seem to be due to their content of gossypol. Pure gossypol produces nearly all the characteristics manifestation of cotton seed intoxication in cattle. This form of poisoning is more feared in the Atlantic Coast States, where gossypol content is nearly 1 per cent., than in the South-West, where the content of gossypol in cotton seed is less.

**Rennin Destruction by Shaking.**—E. K. Rideal and C. G. L. Wolf ("Proceedings of the Royal Society," A106, p. 97) find that the clotting power of rennin solutions on milk is reduced by agitation. The substance which combines with rennin is probably a fatty acid which reacts at the air-liquid interface, where both are favourably concentrated for combination. Dialysis

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or adsorption by fuller's earth or starch removes the catalytic substance from the solution, and its effect can be imitated by capillary active organic acids and by phenol, but not by sulphuric acid, which is not capillary active.

**Artificial Ripening of Lemons.**—F. E. Denny ("Journal of Agricultural Research," 1924, 27, p. 755) finds that the ripening of green lemons is hastened by air containing ethylene gas. Concentration of 1 to 200,000 change the colour in five to eight days, and 1 to 2,000,000 was effective in six to ten days. A dilution of 1 to 5,000,000 represented the greatest dilution which markedly influences rate of change of colour to yellow (which required about fourteen days), while high concentrations apparently retard the change. Absence of oxygen also prevents coloration which temperatures between 57° and 82° C. increases. This discovery was the result of investigation as to why the spent gases from kerosene stoves hastened ripening. The effect is due to the fact that both ethylene and stove gas increased the rate of respiration. Plant has been put down to turn to commercial advantage this process of ripening lemons.

**Biological Role of Alkaloids.**—The specific action of alkaloids on certain plants was the problem which T. Sabalitschka, in collaboration with M. W. Zaber and C. Tungermann, undertook to investigate ("Pharmazeutische Zentralhalle," October 16, 1924). With this object in view, seeds of plants containing alkaloids as well as of those in which no alkaloids occur were treated with solutions of alkaloids in concentrations of 1:100 to 1:100,000. Seeds of *Strychnos nux vomica* (containing 2.2 per cent. of alkaloids) in the course of germination were adversely influenced by a 0.1 per cent. alkaloidal solution, and those of *Lupinus luteus* (containing 0.7 per cent. of alkaloids) by a concentration of 0.01 per cent. This result showed that alkaloids do not promote the germination or growth of plants by which they are produced; in fact, the plant does not exhibit any increased resistance to its own specific alkaloid. The assumption that alkaloids are diffused from the seeds into the surrounding earth, as a means of protection against animal or vegetable parasites, is erroneous, since the authors failed to discover the existence of such a "poisoned zone" round the seeds; further, the fact that the development of alkaloidal seeds, and of these seeds in the process of germination, is inhibited by the presence of an alkaloid in their vicinity speaks against this assumption. On following up the alkaloid content of *Strychnos nux vomica* and of *Lupinus luteus* in various vegetative periods, the authors established that the absolute content, calculated on 100 seeds or plants, decreases during the first fourteen days of germination from 0.106 gram to 0.086 gram in *Lupinus luteus*, and from 3.2 grams to 2.2 grams in the first seven weeks in the case of *Strychnos nux vomica*. With the further development of the plant, the absolute alkaloidal content increased progressively, decreasing slightly during the period of development of the fruit. During the development of the seed, the alkaloidal content of all parts of the plant, with the exception of the seed, decreases, while the seed shows the highest absolute and also relative content of alkaloid. Since the experiments were so conducted as to exclude the access from outside of nitrogen, the plant was compelled to call upon the albumin bodies for the necessary nitrogen for building up the alkaloids. During the process of germination and further growth of the plant, the endosperm yields most of its alkaloidal content to the growing plant; as long as the cotyledons are still enclosed within the seed, they and the surrounding mucilage contain a remarkably large amount of alkaloid. Seeds of *Lupinus luteus* germinated in the dark, as well as four-week-old plants placed for two weeks in the dark, were found to contain less than the normal content of alkaloid. Basing themselves on these results, the authors express the view that alkaloids do not play the rôle of hormones, and are not intended as a protection against outside influences. They are not typical nutritive or reserve substances; they are

continuously formed, probably at the expense of albuminous nitrogen, independently of the access of atmospheric nitrogen, and utilised. The method of their formation points to their being excretions, and their value to the plant resides principally in the fact that by this means the plant is enabled to eliminate harmful metabolic degradation products; also they are capable of being utilised, as is apparent by the absolute decrease in alkaloidal content, in certain circumstances. Alkaloids accumulate at points where vital processes are most in evidence, when consumption exceeds production during germination, and when normal vital conditions are suppressed for a prolonged period, and in the course of maturation.

### ANALYTICAL CHEMISTRY

**Chloramine Volumetric Solution.**—A. Noll ("Chemiker-Zeitung," November 18, 1924) suggests the use of a  $N/2$  solution of *p*-toluolsulphochloramide sodium (chloramine) as a substitute for *N*-iodine solution, particularly in technical analyses. The molecular weight of chloramine is 282, consequently to prepare a normal volumetric solution 15 grams are dissolved in approximately 1,000 c.c. of water and standardised against a  $N/10$  solution of arsenious acid, using a few drops of potassium iodide starch solution as indicator. Comparative tests with solutions of calcium bisulphite, sodium bisulphite, and sulphurous acid, carried out with a  $N/2$  solution of chloramine and with the customary  $N/10$  solution of iodine showed a very close approximation, and, in view of the lower cost, the author is of opinion that the new volumetric solution should prove of considerable interest to manufacturers of cellulose and sulphuric acid.

**Copper in Distilled Water.**—G. Poirot ("Journal de Pharmacie et de Chimie," December 1, 1924) has elaborated a modification of the test suggested by Imbert and Pilgrain for the detection of traces of copper in distilled water. The following reagents are employed: (1) 100 grams of guaiacum resin is dissolved in 200 c.c. of alcohol (95 per cent.) on a water bath, the solution is filtered while still hot and the alcohol removed by evaporating on a water bath, desiccation of the residue is completed in an oven at 100°; 10 grams of this purified guaiacum is dissolved in sufficient colourless pyridine to produce 100 c.c. (2) A solution of hydrogen peroxide 10 volumes is prepared by diluting pure solution of hydrogen peroxide, (100 volumes) with twice distilled water. The test is applied as follows, measuring the liquids in the following order:—

Solution of guaiacum gum in pyridine	0.2 c.c.
Solution of hydrogen peroxide, 10 vol.	3 normal drops
Alcohol (95 per cent.)	10 c.c.
Water to be tested	10 c.c.

This test permits the detection of one part of copper in 100,000,000 parts of water, or in practice, of 0.001 milligram in 1,000 c.c.

**Hydrolysis of Gallo-Tannin by Tannase.**—Miss W. N. Nicholson and D. Rhind, at a recent meeting of the Society of Public Analysts, criticised various methods of quantitatively estimating the degree of hydrolysis of gallo-tannin by tannase. The authors pointed out that tannase disintegrates gallotannin, gallic acid being produced. The activity of tannase can therefore be measured by estimating the unchanged gallotannin. It can also, however, be measured by estimating the amount of gallic acid produced by the enzyme. A method for the estimation of gallic acid produced by tannase has been described by Freudenberg and Vollbrecht. In this method the gallic acid formed by the action of tannase on gallotannin or methyl gallate is estimated by titration with sodium hydroxide, litmus paper being used as an indicator. It is assumed by Freudenberg and Vollbrecht that, under the condition chosen by them, only the carboxyl group in the gallic acid reacts with sodium hydroxide. This method has now been tested, and has been found not to be reliable. Concordant results, how-

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ever, have been obtained by using a slight modification of Mitchell's colorimetric method for the estimation of small quantities of gallic acid. This method has been in constant use for eighteen months in connection with the work on tannase, and has been found to give good results.

**New Methods of Arsenic Determination.**—At a recent meeting of the Society of Public Analysts, H. E. Cox described new methods for the estimation of small quantities of arsenic, and its occurrence in urine and in fish. The methods and results of the Swedish Commission on chronic arsenical poisoning have been carefully tested, and the conclusion reached that the nitric and sulphuric acid digestion process described by Bang and Ramberg gives higher and more accurate results than the older wet combustion method adopted by the Joint Committee of the Society of Public Analysts and the Society of Chemical Industry in 1902. The iodine titration method of Bang is not reliable, but Ramberg's bromate method gives satisfactory results if the amount of arsenious oxide to be estimated is not less than 0.01 mgm.; below this amount the Marsh-Berzelius process following Ramberg's method of destruction is preferable. It is found that normal urine may contain quantities of arsenic which have been thought to be associated only with chronic arsenical poisoning; amounts present in the urine of persons on known diets varied from 0.0 up to 0.58 mgm. per litre. Large excretion of arsenic is due to the eating of fish, and it is shown that fish, specially plaice, may contain arsenic up to 3 parts per million. The eating of such fish leads to the appearance of quantities of arsenic in the urine within twenty-four hours.

**Mitchell's Ferrous Tartrate Reagent in Qualitative Analysis.**—A. H. Ware, at a recent meeting of the Society of Public Analysts, described and discussed results obtained by the use of Mitchell's reagent with plant extractives in the presence and absence of alkalis, including a new modification of the test in which acetic acid is used. He finds the test in its different variations of great value in plant analysis and pharmacognosy. A list of a number of phenolic bodies of different classes is given, including catechol-bodies, giving in plant extractives a good violet colour reaction to the test, in the presence of definite amounts of alkali, also of catechol-bodies, which, although they resemble those of the first list in giving good green colour reactions with ferric alum, yield no violet colour to the test under discussion. The test affords a useful means of distinguishing between ipecaeuhanha extractives and a number of other extractives yielding a green colour to ferric alum, but which, like ipecaeuhanha, do not contain tannin. The modification of the test given by boiling with dilute acetic acid after adding the iron reagent, affords a very valuable means of distinguishing between two classes of gallic acid tannins. Those of one class give a good blue or violet colour reaction under the conditions named, whilst those of the other class do not show this result. The author gives a list of drugs and tanning materials falling into the two classes referred to, and proposes that the term "gallotannins" should be confined to tannins which give the blue or violet coloration to the acetic acid modification of Mitchell's test. S. Glasstone, at the same meeting, discussed the maximum intensity of coloration with Mitchell's ferrous tartrate reagent, which is obtained within the limits of  $P_H$  6.5 and 10.3 for pyrogallol, 5.9 and 10.3 for gallic acid, and 4.1 and 11.1 for gallotannin. Hence the conditions described by Mitchell are suitable for obtaining equal intensities of the violet colour. In the case of catechol derivatives, however, the limits are much narrower, and suitable adjustments of the  $P_H$  value are necessary to obtain quantitative results. The author recommends the addition of ammonium acetate, to act as a buffer and to give a  $P_H$  value of about 7.6.

### BIOLOGICAL CHEMISTRY

**Reactivation of Boiled Milk.**—Milk which has been boiled and exhibits a negative result with Storch's enzyme test, is devoid of antiscorbutic properties. Y.

Kimugasa and Y. Hattori ("Yakugakuzasshi," June 1924) have found that the addition of 5 per cent. of fresh tomato juice to boiled milk restores not only its antiscorbutic action, but also renders it equal to fresh milk in regard to its other nutritive properties.

**Production of Vitamins by Irradiation.**—Considerable prominence has been given in the lay Press to the experiments of H. Steenbock and A. Black ("Journal of Biological Chemistry," 61, p. 405). These workers found that food free from vitamin A on exposure to ultra-violet light from a mercury vapour lamp becomes capable of sustaining growth of rats. Irradiation induced vitamin A in the muscle and liver of rats. Margaret Hume and H. Henderson Smith, at the November meeting of the Biochemical Society, confirmed the production of fat soluble vitamin A by irradiation of sawdust.

**Vitamin B and Lactation.**—Gladys Annie Hartwell describes experiments ("Lancet," II, 1924, p. 956) which show that various diets which are excellent for the growing animal may be totally unsuitable for the lactating animal. In the experiments quoted in the paper, with diets rich in protein, the lactating rat must have a greater supply of vitamin B than at other periods of her existence, otherwise she cannot rear her young successfully. If this be true of human beings, a mother taking a diet containing but little more protein than the Atwater standard should include in that diet considerable quantities of foods (e.g., fruits and vegetables) containing vitamin B.

**Vitamin Potency of Cod-liver Oil.**—A. D. Holmes, ("Industrial and Engineering Chemistry," November, p. 1181) gives growth charts showing that medicinal cod-liver oil varies appreciably in vitamin A content. Ten samples were bought in the open market, and their physical and chemical constants bore no relationship to vitamin values. The amount of oil required to supply sufficient vitamin for rats to live during the forty-five-day experimental period ranged from 0.715 milligram to 18.15 milligrams per day. This author concludes "that if one wishes to be assured of a cod-liver oil of high-vitamin potency, it is essential to insist on an oil whose vitamin potency has been determined."

**The Banana as Accessory Food.**—It is generally agreed that the banana contains vitamin C in abundance and a fair quantity of vitamin B, but as the presence of vitamin A was considered doubtful, Dr. Eva Sopp, of the Kapp Laboratory, undertook a series of investigations with a view to discovering whether this principle was present ("Norsk Magazin for Laegevidenskaben," September 1924). As a result of the satisfactory positive results obtained, the author concludes that 1 gram of banana is to a young rat as four or five whole bananas are to a three-year-old child, and that, with even less than four or five bananas a day, it should be possible to provide a young child with a sufficient supply of vitamin A. In addition to its high and varied vitamin content, the banana possesses other virtues, including its pleasant taste and digestibility. It contains from 19 to 20 per cent. of sugar and starch, from 0.5 to 1 per cent. of fat, and 4 to 5 per cent. of protein.

**Relation between Protein Metabolism and Vitamin B.**—G. A. Hartwell ("Biochemical Journal," XVIII, No. 5, p. 785) gives the results of experiments with lactating rats, which prove that the more protein there is in the diet the more vitamin B must be added if the young sucklings are to be reared successfully. The addition of 4 per cent. casein (containing 85 per cent. protein) to a bread diet produces abnormal conditions; spasms and screaming fits ensuing with 6 per cent. casein. None of the young survived when the mother was fed on a diet of 40 per cent. of casein and 60 per cent. bread. When the vitamin B intake was increased (either as tomato juice or as yeast extract) the increase in proportion of protein did not produce evil effects, but the rate of growth of the sucklings is impaired when the casein content is 60 per cent. No spasms resulted when

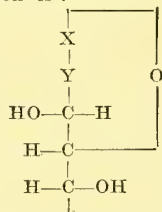
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starch replaced protein. Hence the rôle of vitamin B is concerned in metabolism with protein *qua* protein, and not with fatty acid or carbohydrate.

**Phosphates and Carbohydrate Metabolism** is the subject of intensive study, and two different schools of investigators publish new data on this subject in the "Biochemical Journal" (vol. xviii, No. 5). H. D. Kay and R. Robison (p. 1,139) found that after insulin administration, the evidence from their experiments is that organic phosphoric esters are synthesised at the expense of inorganic phosphate originally present in the blood *plus* additional phosphate drawn from other tissues. S. S. Sokhey and F. N. Allen (p. 1171) conclude that the marked changes following the administration of insulin (together with the fact that the same changes occur after the ingestion of sugar) establish beyond question the existence of an intimate relationship between the metabolism of carbohydrate and phosphoric acid. Sugar or insulin given separately or together result in a temporarily diminished phosphate excretion. Both papers compare these results with the rôle of phosphates in accelerating fermentation of glucose by yeast and increase in "lactacidogen" phosphates (phosphoric esters) in muscle.

**Vitamins in Barley and Preparations.**—H. W. Southgate ("Biochemical Journal," vol. xviii, No. 5, p. 769) reports on the dietetic value of barley, malt and malted liquors as determined by their vitamin content. The results indicate that while barley and malt contain water-soluble vitamin B in considerable quantity and in equal amount, there is no evidence that barley or its derivatives contain either vitamin A or vitamin C to any appreciable extent. Beer also contains vitamin B, independently of its yeast content, but to a much less extent than the corresponding amount of barley used in its manufacture. Thus, using the usual basal rations employed in such test experiments, it was found that it required the addition to it of 1.7 grams of barley (about 30 per cent. of the total ration) to secure good growth and fertility in rats. The beer (17 c.c.) produced from double the amount of barley (3 gm.) failed, however, to ensure normal growth. A. Harden and S. S. Zilva, on p. 1129 of the same journal, also state that vitamin B of barley is not affected by malting. The antiscorbutic vitamin C is present in green malt but is absent from kilned malt. The beer examined was free from both vitamins B and C.

**Efficacy of Various Sugars as Antidotes to Insulin.**—P. T. Herring ("Biochemical Journal," xviii, No. 5, p. 1023) has tested on mice the effect of changes in the molecular constitution of sugar on the alleviation of insulin convulsions or coma. Glucose and mannose are equally effective, and bring about complete recovery. Maltose is also active, but is slower and inferior. Fructose and galactose cannot take the place of glucose, as although there may be a temporary alleviation, relapses are frequent. Lactose is inactive. Principal J. C. Irvine, in reviewing the results, states that the type of carbohydrate molecule functional in eliminating the insulin convulsion is:—



Either X or Y represents a reducing group, which it is suggested may undergo rearrangement to give a common form. The anhydride  $\beta$ -glucosan failed to show any positive result, and therefore it can be reasonably deduced that glycogen as such plays no part as a corrective carbohydrate unless it undergoes hydrolysis to glucose.

### INDUSTRIAL CHEMISTRY

**The Odour of Artificial Musk**, or trinitro-tertiary butyl-*meta*-xylene, depends upon both the butyl grouping, and the tertiary carbon radical, is the conclusion arrived at by M. Battegay and M. Kappelier ("Bulletin de la Société Chimique de France," August, 1924).

**Foaming of Boiler Water.**—C. W. Foulk ("Industrial and Engineering Chemistry," November, p. 1120) has investigated the mysterious phenomena of foaming or priming of water in boilers. Experiment in flasks agree with the notion that the usual inorganic salts such as sodium are responsible for foam, but only when there is present finely divided solid matter such as loose scale and sludge. The films formed lack sufficient viscosity, but the sludge acts as a stabilising agent, and a persistent foam results. A trace of castor oil is pre-eminent in destroying all foams produced by finely divided solids.

**Effect of Catalysts on Turpentine.**—Y. Marayama, K. Abe, and S. Yamagishi ("Yakugaku-zasshi," 1924, No. 507, 341-347). An American turpentine oil was treated with the following catalysts in order to observe the yield of borneol. The method followed was as follows: The oil was warmed with twice its weight of carbon tetrachloride at 50°, a mixture of oxalic acid and a catalyst were added, and the temperature kept at 70°-80°. The yield of borneol was: With aluminium chloride, 22 per cent.; with stannic chloride, 21 per cent.; with phosphoric chloride, 0 per cent.; with zinc chloride, 11.5 per cent.; with ferric chloride, 25 per cent.; with Japanese acid clay, 11 per cent.; with wood charcoal, 6.6 per cent. When oxalic acid was used alone the yield was 1.6 per cent.

**Organic Refrigerating Brines**, according to Harper F. Toller ("Industrial and Engineering Chemistry," October, p. 1073), have points of superiority over the usual inorganic brines (containing calcium chloride). The former have less electrolytic action and oxidising action on metal pipes and bimetallic or soldered joints, so that they largely overcome the question of metallic corrosion. Denatured ethyl alcohol heads the list of organic brines on a cost analysis. The specific heats of ethyl alcohol solutions closely parallel the value of calcium chloride brines, but the specific gravity of the former is considerably less, an (American) gallon of 35 per cent. alcohol weighing 7.93 lb., whereas a 25 per cent. solution of calcium chloride weighs 10 lb., and has less than 5 per cent. greater refrigerating capacity per gallon.

**Shellac Test.**—Basing on the fact that genuine shellac contains a yellow dye, erythrolaccin, which exhibits all the characters of an anthraquinone body and yields with alkalis a red solution. A. Tschirch ("Schweizerische Apotheker-Zeitung," Oct. 11, 1924) has elaborated a test for distinguishing genuine shellac from its substitutes, in none of which this substance is to be found. Alcohol is added to the specimen to be examined, and occasionally shaken until the wax has separated; the solution is then filtered and ether added. On shaking the resulting yellow solution with a dilute solution of sodium carbonate, the latter takes up the dye, producing a violet-red coloration. If this layer is removed and acidified, on the addition of ether the dye reappears, yielding again a yellow solution.

### PHARMACEUTICAL CHEMISTRY

**Barium Sulphate for X-ray Examinations.**—In view of the numerous fatalities which have resulted from the use of barium sulphate containing soluble barium compounds, the German Health Department has elaborated the following tests for barium sulphate for use in x-ray examinations: On shaking 5 grams of barium sulphate with 50 c.c. of acetic acid (10 per cent.), there should be no liberation of carbon dioxide. After heating the mixture to boiling, and allowing the barium sulphate to deposit, the filtrate is shaken with a small amount of animal charcoal, and again filtered. On adding a few

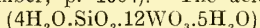
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drops of dilute sulphuric acid to 25 c.c. of the clear filtrate no turbidity should appear in the course of thirty minutes, otherwise it should be rejected as containing 0.1 per cent., or over, of barium carbonate, or of soluble barium compounds.

**Cinnamyl Alcohol** is readily prepared by hydrolysis of cinnamyl diacetate, a 98 per cent. yield being obtained when 5 per cent. alcoholic sodium hydroxide is used. A. J. Hill and E. H. Nason ("Journal of the American Chemical Society," October, p. 2236) find that pure cinnamyl diacetate can be prepared directly and in excellent yield (85 per cent.) from cinnamic aldehyde or cassia oil. The process consists in adding a few drops of concentrated sulphuric acid to the equimolecular mixture of cinnamic aldehyde (or cassia oil) and acetic anhydride previously cooled to 10°. The temperature of the reaction mixture rises to 40°, and after it cools to 20° it is neutralised with dilute sodium carbonate solution. After the acetate has been filtered off it is washed with cold alcohol. This method provides an alternative source for cinnamyl alcohol for use in perfumery, which has previously been obtained from storax, and which contains cinnamyl cinnamate.

**Aldehyde Test.**—As a result of a comparative study of the tests given in various pharmacopœias for the detection of aldehydes in chloroform, E. Isnard ("Journal de Pharmacie et de Chimie," July 16, 1924) comes to the conclusion that none of these are entirely satisfactory. The silver nitrate test is useless in the presence of less than 1 per cent. of aldehydes, a concentration which is perceptible by the odour alone, while the sensitiveness of the potassium hydroxide test and the Nessler reagent test is about 1:2,000. In the place of these tests for aldehydes in alcohol and chloroform, the author suggests the following method: 10 c.c. of alcohol is mixed with 4 c.c. of solution of rosanilin bisulphite (François' reagent); shake carefully and set aside for 15 minutes. The colour of the mixture should not exceed that of a solution of potassium permanganate 1:100,000. The sensitiveness of this test is 1:20,000, and it presents the advantage that it may also be used in testing ether or chloroform for the presence of aldehydes.

**Silicoductungstic Acid** is suggested for use in volumetric assay of alkaloids in preparations of cinchona, nux vomica, belladonna, etc., by E. O. North and G. D. Beal ("Journal of the American Pharmaceutical Association," November, p. 1004). The acid



is stable and definite in character, and is used with an external indicator of malachite green (2 grams in 300 c.c. of 6N hydrochloric acid). The indicator on a "spot" plate is yellow with alkaloid and blue-green with acid. The process has the advantage that it is possible to titrate alkaloidal salts with standard solutions of silicoductungstic acid in the presence of free hydrochloric or sulphuric acid. The volumetric solution of silicoductungstic acid (molecular weight 3,006) is made by dissolving 30 grams of the acid in water and making up to 1,000 c.c. (=0.01 molar). It is standardised against pure cinchonine, or by evaporation to dryness and weighing after ignition the silicoductungstic anhydride.

**Adrenalin Assay of Suprarenal Preparations.**—O. Bailly ("Journal de Pharmacie et de Chimie," December 1, 1924) suggests an adaptation of the test originally proposed by Grimbert and Lechère for the detection of traces of apomorphine, as a colorimetric test for the presence of adrenalin in powdered preparations of the suprarenal gland. A mixture of 1 gram of powdered suprarenal gland, 1 c.c. of volumetric solution of sulphuric acid and 5 c.c. of distilled water is macerated for 15 minutes, and the whole completed to 100 c.c. by the addition of water. After standing for a further period of 15 minutes, filter; add to 2 c.c. of the filtrate a solution of 1 gram of sodium acetate in 8 c.c. of distilled water and 3 drops of a 5 per cent. solution of mercuric chloride. A beautiful red colour rapidly appears, which attains its maxi-

mum intensity at the end of three minutes, and is sufficiently permanent to enable comparison with a standard solution of adrenalin, prepared by mixing 0.01 gram of adrenalin, 1 c.c. of volumetric solution of sulphuric acid and distilled water to produce 100 c.c.

**Theobromine, Theophylline and Caffeine.**—The following differential tests for these three purin derivatives are described by L. W. Winkler ("Pharmazeutische Zentralhalle," p. 557, 1924): 0.1 gram of theophylline immediately produces decoloration of a mixture of 5 c.c. of water, 1 to 2 drops of alcoholic phenolphthalein solution (1:100), and 1 drop of N/10 solution of sodium hydroxide. The same amount of caffeine causes scarcely any appreciable alteration in the colour of the reagent, even on heating, while theobromine produces decoloration on heating; but on cooling the mixture, the red colour reappears. 0.1 gram of theophylline is completely soluble in 1 c.c. of solution of ammonia (sp. gr. 0.96), whereas caffeine and theobromine are almost insoluble. This test may be used to demonstrate the presence of about 5 per cent. of caffeine or theobromine in theophylline; 0.1 gram of theobromine yields a clear solution with 1 c.c. of solution of potassium hydroxide (20 per cent.); caffeine does not dissolve, while theophylline yields a difficultly soluble compound; this test is useful for demonstrating the presence of caffeine or theophylline in theobromine.

**Activity of Rhubarb.**—An investigation into the methods of determining the therapeutic activity of rhubarb by H. Göldlin von Tiefenau ("Pharmazeutische Zentralhalle," November 20, 1924) showed that rhubarb extract should be prepared by maceration, followed by evaporation *in vacuo*, otherwise it loses about 75 per cent. of its activity. The yield of extract bears no relation to its physiological action, and the results of comparative tests proved that the chemical methods of assay fail to give an accurate index of the therapeutic activity of the drug. In addition to the anthraquinone bodies, rhubarb contains a series of other active substances, for the author found that on isolating the former they exhibited only a fraction of the total physiological effects displayed by the drug itself. On completely extracting the anthraquinone bodies from rhubarb, the resulting extract was found still to possess a very pronounced physiological activity. However, the author failed in his attempts to isolate in a pure form the substances possessing the highest activity, which he assumes to be reduction products of anthraquinone bodies.

**Preparation of Ethyl Acetate.**—As a preliminary to a study of the preparation of ethyl aceto-acetate, K. C. Roberts ("Journal of the Society of Chemical Industry," September 26, 1924), undertook a critical investigation of the various methods of preparing and purifying ethyl acetate. As a result of his observations, the author recommends the following procedure:—An equimolecular mixture of absolute alcohol and glacial acetic acid is heated under a reflux condenser with one-tenth its volume of concentrated sulphuric acid on the water-bath for ten minutes, and then distilled from the oil-bath at 130°. The crude distillate is purified by shaking with twice its volume of water, separating the ester layer, and distilling the aqueous layer up to 72° for dissolved ester. The two portions of ester thus obtained are mixed, dehydrated over potassium carbonate, and fractionated. Ester of 98 per cent. purity, free from water, is then obtained in excellent yield by collecting the portion boiling at 76.15°-77.15° (1 mm. of mercury corresponds to a change in boiling point of 0.06°). Final purification of the high-boiling ester is effected by heating it with phosphorus pentoxide and then fractionating.

**Sulphur in Novarsphenamine.**—Elias Elvøre ("United States Public Health Reports," April 11, 1924, p. 750, and reprint No. 913) describes a method of determining the total sulphur in novarsphenamine and sulpharsphenamine which depends on oxidation by permanganate and hydrochloric acid, the results agreeing closely with those given

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by the Carius method, or else involving fusion with sodium peroxide. The quantities taken are 0.4 gram of the organic arsenical, 20 c.c. of 25 per cent. NaCl solution, 150 c.c. *N/2* potassium permanganate and 15 c.c. normal HCl. After standing for half an hour, evaporate to dryness on a water bath, cool, add 5 c.c. normal HCl and 50 c.c. distilled water, detaching residue from side and mixing well. Carefully add 6 c.c. of 3 per cent. hydrogen peroxide solution, again mix, stirring at frequent intervals until reaction with peroxide is nearly completed. Carefully heat to boiling and titrate with seminormal permanganate solution until distinctly pink. Decolorise with seminormal oxalic acid, filter, make up to 100 c.c., of which 50 c.c. is used for determining arsenic iodometrically by Lehmann's method, and on the other 50 c.c. the sulphate is determined gravimetrically.

**Lysol Standard.**—Messrs. J. Hendry and P. A. Berry, in a paper read before the Australian Pharmaceutical Conference at Adelaide in August, suggested the following monograph for inclusion in the British Pharmacopœia:—

### LIQUOR CRESOL SAPONATUS

*Syn., Lysol*.—A solution of cresol in a liquid vegetable soap. It shall contain 50 per cent. by volume of cresol. The soap shall be made from potash and vegetable oil.

### Characters and Tests

A clear brownish-red liquid of pleasant phenolic odour. Sp. gr. 1.033 to 1.043. Miscible to clear solutions in all proportions with water. When tested with phenolphthalein test paper gives no immediate pink or red coloration (absence of free alkali). Shaken with an equal volume of dilute sulphuric acid, and the mixture allowed to separate for twelve hours, the upper layer shall measure not less than 80 nor more than 85 parts per cent. The upper layer when tested for cresol by an approved distillation method shall yield not less than 48 nor more than 52 per cent. by volume of cresol, calculated on the volume of lysol. The cresol separated in this distillation test shall respond to tests under cresol.

**Preparation of Potassium Sulphoguaiacolate.**—A. Decio ("Bollettino Chimico-Farmaceutico," September 15, 1924) gives the following method for the preparation of potassium sulphoguaiacolate: 98 grams of sulphuric acid is added to 124 grams of guaiacol, under cooling. The flask is hermetically closed by means of a rubber stopper and maintained on a water bath at a temperature of 50° to 60° for four hours, whereupon it is set aside for twelve hours. The resulting pink mixture is diluted with water, about five times as much as the volume of guaiacol used; after warming the dilution, calcium carbonate is added in small portions until complete neutralisation is effected. The excess of sulphuric acid is precipitated in the form of calcium sulphate; at the same time calcium sulphoguaiacolate is formed. Keeping the whole still warm and without removing the precipitate of calcium sulphate, solution of potassium carbonate is added until complete exchange of the potassium for the calcium takes place. The mixture is now filtered, and the filtrate washed several times with boiling distilled water. To decolorise the dark liquid thus obtained, the author adds, calculated on the molecular weight, 0.1 gram of tannic acid, 0.2 gram of alum, and about 0.2 gram of potassium hydroxide, to precipitate the excess of alum. The liquid is then concentrated under reduced pressure, or on a water bath at a low temperature, and set aside for crystallisation. The crystals are further purified by centrifuging, and, if necessary, by washing with absolute alcohol and ether.

**Tragacanth Tests.**—In determining the nitrogen content of various specimens of tragacanth, L. Rosenthaler ("Schweizerische Apotheker-Zeitung," October 18, 1924) found considerable variations according to the origin of the drug. Pharmacopœial products of unknown origin were found to contain 0.155 and 0.161 per cent. of nitrogen; Cretan tragacanth, 0.538 per cent.; Morea, 0.474 per cent.; Bombay, 0.618 per cent.; Persian, 0.745 per cent.; Syrian, 0.195 per cent.; and Anatolian, 0.353

per cent. In the course of these investigations, the author observed that the different specimens yielded a variety of colorations on treatment with sulphuric acid. The following observations were made on adding a few particles of tragacanth to concentrated sulphuric acid:—

Origin	After 1 minute	After 5 minutes.	After 15 minutes	After 1 hour
Pharmacopœial tragacanth origin unknown	Almost colourless	Very light orange	Light orange	Brown
Id. . . . .	Almost colourless	Very light orange	Light orange	Brown
Syrian. . . . .	Almost colourless	Light orange	Light orange	Brown
Anatolian . . . .	Dark orange	Very dark orange	Very dark orange	Purple streaks
Persian . . . . .	Dark orange	Very dark orange	Very dark orange	Purple streaks
Bombay . . . . .	Dark orange	Dark orange	Deep orange	Purple streaks
Morea . . . . .	Light orange	Light orange	Darker orange	Purple streaks

This test is so simple to apply and permits the ready distinction between official and non-official varieties of tragacanth that the author feels justified in recommending its inclusion in the pharmacopœias.

**Detection of Crude Camphor.**—P. Grélot ("Bulletin des Sciences Pharmacologiques," July, 1924) draws attention to the possibility of crude camphor being used by unscrupulous persons in the manufacture of official preparations, on account of its price being somewhat lower than that of the refined, official product. Crude camphor has an optical rotation of +40.15°, while that of refined camphor is +43°, but the polarimetric test is not conclusive, as the slight difference in rotation may be attributable not to the presence of crude camphor, but to a deficiency in refined camphor in the composition of the preparation. Crude camphor contains certain impurities which are absent in the refined product, principally safrol, due to the presence of oil of camphor, and which may be recognised by dissolving a piece of crude camphor the size of a pea in 2 c.c. of pure nitric acid. Solution takes place immediately, the acid assuming a distinctly dark pink tint, increasing to a gooseberry red; using an excess of acid, the colour changes within a few minutes to yellow, and on heating the liquid nitrous vapours are emitted. With refined camphor, only a yellow coloration is produced, which under no circumstances turns to a red shade. To apply the test, the author recommends that the camphor should be separated from the preparation by evaporation at 250°, or by precipitation with water in the case of spirit of camphor, and by sublimation in the case of camphorated oil (the boiling point of safrol is 233°). However, it is possible also to apply the test directly: 5 c.c. of spirit of camphor is mixed with 20 drops of a 4 per cent. alcoholic solution of furfural and 5 c.c. of pure hydrochloric acid added. In the presence of crude camphor a blue coloration, which slowly ascends, appears within a few minutes at the bottom of the test tube; if refined camphor has been used, no coloration is produced. Or, 15 drops of nitric acid are allowed to fall on 3 c.c. of camphorated oil in a test tube; if crude camphor is present it causes the production of a red ring in the acid layer at the junction of the two liquids, and on gently agitating the test tube the whole of the acid layer assumes a reddish-pink tint. No coloration is produced with refined camphor.

**Morphine Assay of Tincture of Opium.**—A. Hansen ("Archiv for Pharmaci og Chemi," Nos. 3, 4 and 5, 1924) reports the results of an exhaustive comparative investigation into the various methods suggested and adopted for the assay of morphine in tincture of opium, and basing himself on his observations he proposes the following procedure: 50 grams of tincture of opium is evaporated on a water bath to 15 to 20 grams, whereupon sufficient water is added to produce 50 grams and the operation repeated (this is done to remove completely the

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alcohol). The residue, weighing about 20 grams, is completed to 50 grams by the addition of water. On cooling, 2 c.c. of *N* solution of ammonia is added and the mixture immediately filtered. 41.6 grams of filtrate is weighed into a tared long-necked graduated flask of 125 c.c. capacity, 15 c.c. of alcohol-free ether, 1.5 c.c. of *N* solution of ammonia are added, shaking the flask, and finally a solution of 0.8 gram of borax in 5 c.c. of water. The whole is vigorously shaken for ten minutes, whereupon 10 c.c. of ether is added, and the whole set aside for twenty-four hours. The ether is then carefully removed, filtering it through a filter of 8 cm. diameter, and the residue in the flask shaken with 10 c.c. of ether, which is then filtered off, whereupon the aqueous solution remaining in the flask is also filtered through the same filter; the flask is then washed six times with 5 c.c. of water, the washings are also filtered and serve to remove the last traces of the precipitant from the crystals collected on the filter. The funnel with the filter is placed on the flask and 25 c.c. of *N*/10 hydrochloric acid poured on the filter. The funnel with the filter is transferred to an ordinary medicine bottle of 150 c.c. capacity, and when all the morphine crystals in the first flask have gone into solution, the latter is again poured through the filter into the medicine bottle, after which the first flask, the stopper and the filter are washed with three portions each of 25 c.c. of water; 8 drops of methyl red solution (1:2,000) are added and the solution is then titrated with *N*/10 solution of sodium hydroxide till the red colour turns to yellow. 1 c.c. of *N*/10 hydrochloric acid = 0.0285 gram of morphine.

**Drug Standards.**—E. Léger ("Bulletin des Sciences Pharmacologiques," July 1924) points out that most pharmacopœias prescribe a definite content of active alkaloid in the case of official potent drugs and their preparations. These requirements may be classed in three groups: (1) A minimum content of alkaloids is required, e.g., pomegranate root, 0.25 per cent.; ipecacuanha, 2 per cent.; cinchona, 5 per cent.; liquid extract of hydrastis, 2 per cent., etc. (2) A fixed minimum and maximum limit of alkaloidal content is prescribed, e.g., nux vomica, from 2 to 3 per cent. of total alkaloids. (3) The drug, or its preparation, is required to contain a definite amount of active principle, e.g., opium, 10 per cent.; tincture of aconite, 0.5 per cent., etc., whereby preparations with an alkaloidal content exceeding the prescribed limit are diluted by the addition of a prescribed medium. Léger proposes that in the case of heroic drugs and their preparations a maximum as well as a minimum content of active principles should be required, and that the method to be adopted for bringing the content of alkaloid within these limits should be indicated in each instance. Basing himself on the results of a critical study of the requirements of a number of pharmacopœias, he makes the following specific suggestions: *Powdered opium* dried at 60° should contain from 10 to 12 per cent. of morphine; should the content exceed 12 per cent., it should be diluted by the addition of powdered opium with a lower content of morphine. *Extract of opium* should contain from 20 to 22 per cent. of morphine; should this content be exceeded the preparation should be diluted by the addition of an extract having a lower content of morphine. The author points out that this margin of content is important, in view of the fact that extract of opium is one of the few extracts which loses water on keeping. *Powdered belladonna leaves* dried at 100° should have a content of 0.3 to 0.5 per cent. of total alkaloids; if necessary, they should be diluted by the addition of powdered leaves with a lower content of active principles. *Extract of belladonna leaves* should contain from 2 to 3 per cent. of alkaloids, and the amount of water present in the extract should not be less than 10 nor more than 15 per cent. If the alkaloidal content exceeds 3 per cent. the preparation should be diluted by the addition of an extract with a lower alkaloidal content. In addition to the above

suggested standards Léger proposes maximum and minimum limits of alkaloidal content for the following drugs and preparations:—

Tincture of opium ... ..	1 to 1.2 per cent.
Nux vomica (total alkaloids) ... ..	2 to 3 per cent.
Extract of nux vomica (total alkaloids) ... ..	15.2 to 16.5 per cent.
Tincture of nux vomica (total alkaloids) ... ..	0.23 to 0.26 per cent.
Hydrastis ... ..	2.5 to 3 per cent.
Liquid extract of hydrastis ... ..	1.8 to 2.2 per cent.
Ipecacuanha ... ..	2 to 2.5 per cent.
Liquid extract of cinchona ... ..	4 to 5 per cent.

**Assay of Ergot.**—A. Goris and A. Liot ("Bulletin des Sciences Pharmacologiques," July 1924) publish the results of an exhaustive study of the determination, by chemical means, of the activity of ergot and its official preparations. The authors have elaborated a new method for the assay of ergotinine and of the specific alkaloids of ergot, based on precipitation by silicotungstic acid. For this purpose it was necessary to determine experimentally the coefficient by which the amount of  $\text{SiO}_2 \cdot \text{WO}_3$  found should be multiplied to ascertain the weight of ergotinine, and as a result of a series of tests they decided to assume as the composition of the resulting compound the formula  $24 \text{WO}_3 \cdot 2\text{SiO}_2 \cdot n\text{H}_2\text{O}$ , 7 alkaloids

$$= \frac{7 \times 609}{5,688} = 0.749;$$

the molecular weight of ergotinine being 609. Control tests with solutions of ergotinine showed that this coefficient—0.749—gave readings closely approximating the actual content of alkaloid present in the test solutions. To apply the test, 5 grams of extract of ergot dissolved in 10 grams of alcohol (60 per cent.) is treated with a mixture of a few drops of lactic acid (20 per cent.), 40 grams of chloroform, 105 grams of ether, and 10 c.c. of solution of sodium carbonate (25 per cent.). The whole is set aside for one hour, with frequent agitation, whereupon 120 to 125 grams of the ether-chloroformic liquid is removed to a separator and extracted with four or five portions of lactic acid (20 per cent.) until the washing, freed from ether, yields no turbidity with silicotungstic acid. The acid liquids are collected, the ether removed by evaporation, and when cool, precipitated by the addition of silicotungstic acid. The precipitate is collected, washed and calcined, and the weight of the residue multiplied by 0.749. Since ergot has an average content of 0.2 per cent. of ergotinine, the fact that extracts of ergot (prepared according to the method of the French Codex by percolation with 60 per cent. alcohol) were found to contain only 0.139, 0.164 and 0.242 per cent. of alkaloid shows that there is a considerable loss, due either to decomposition in the process of evaporation or to incomplete extraction. On applying this method to powdered ergot, previously defatted by treatment with petroleum ether (whereby 32.8 per cent. of fatty substances was extracted), an ergotinine content of 0.211 and 0.204 per cent. was found, corresponding to 0.141 and 0.137 per cent. respectively in the non-defatted drug. These figures require correction, since it is necessary to add the weight of ergotinine, 0.0262 gram, extracted by the petroleum ether in the process of removing the fatty substances; on taking this loss into consideration, the content of ergotinine actually present in the samples of drug works out at 0.167 and 0.163 per cent. Further tests by the authors showed that ergotinine is actually decomposed by heat in the course of evaporating its aqueous solutions; further, they established that only a minute proportion of ergotinine is extracted by pure water, or by water acidulated with tartaric acid. Consequently, they suggest that in the preparation of extract of ergot, concentration of the liquid should be performed *in vacuo*, at as low a temperature as possible, and not by evaporation on a water bath. In conclusion, they propose the inclusion in the pharmacopœia of a test for the recognition of ergotinine

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in preparations of ergot, consisting in dissolving 2 grams of extract in 5 grams of water, and adding sufficient solution of ammonia, or of sodium carbonate, to produce an alkaline liquid. The latter is extracted with 10 c.c. of ether, and the ether evaporated. The residue is dissolved in 3 c.c. of sulphuric acid (50 per cent.) containing 1 drop of ferric chloride solution (2 per cent.); the intensity of the resulting lilac-violet coloration depends on the amount of ergotinine present.

### PURE CHEMISTRY AND PHYSICS

**Emilium.**—At the meeting of the Paris Académie des Sciences, held on September 15, P. Loisel read a communication dealing with his investigations into the gases present in the waters of a number of springs at Bagnoles-de-l'Orne. In addition to radium emanations, he observed another, hitherto unknown emanation, the activity of which decreases by 30 per cent. in the course of six days, which he assumes to proceed from a new element, to which he has given the name of "emilium." To establish the identity of this new element, a study is being made of the granite from which the waters in question originate.

**Note on Kessyl Alcohol.**—Y. Sahina and G. Hongo ("Journal of the Pharm. Soc. of Japan," No. 506, 227-233) give the following results, which show that kessyl alcohol is a secondary alcohol having two benzene rings and an ethereal oxygen atom. The kessyl alcohol was obtained from *Valeriana officinalis*, L., var. *Latifolia*, Miq., and its physical and chemical characters are the same as those described by Bertram and Gildemeister (A., 1891, 238), except  $[\alpha]_D^{20} = -44.72^\circ$  in alcoholic solution. With vanillin in hydrochloric acid it gives a cherry-red colour, gives no iodoform reaction, is stable toward potassium permanganate, is not reduced by sodium and alcohol, in the presence of platinum does not absorb hydrogen, and has no methoxy group. It gives a urethane m.p.  $168^\circ$ . Its acetate b.p.  $157^\circ-158^\circ$  at 6.5 mm. is a colourless viscous liquid. On oxidation with potassium dichromate and sulphuric acid it gives an  $\alpha$ -ketone,  $C_{14}H_{22}O_2$ . In alkaline solution with hydroxylamine it gives two oximes,  $C_{14}H_{23}O_2N$ , m.p.  $153^\circ-154^\circ$  and  $42^\circ$  [or  $(+\frac{1}{2}H_2O)$ , m.p.  $65^\circ-69^\circ$ ]. The oxime, m.p.  $153^\circ-154^\circ$ , gives a yellow powder, m.p.  $160^\circ$ , when treated with cold concentrated sulphuric acid, but if the sulphuric acid is warm it gives a yellow powder, m.p.  $155^\circ$ . On treatment with boiling alcoholic hydrogen chloride the  $\alpha$ -ketone is converted into a  $\beta$ -isomeride, giving no coloration with vanillin in hydrochloric acid. Sodium and alcohol reduce the  $\alpha$ -ketone to iso-kessyl alcohol. Treatment with ethyl nitrate and sodium in an ethereal solution convert the  $\alpha$ -ketone into  $C_{14}H_{25}O_4N$ .

**The Source of Radiant Heat from the Sun.**—J. H. Jeans, the mathematician and secretary of the Royal Society ("Nature," December 6, p. 828), suggests that the source of stellar radiation is to be found in the actual destruction of matter in a star's interior. Thus the sun, in losing energy by radiation at the rate of  $3.8 \times 10^{33}$  ergs per second, must be losing mass at the rate of  $4.2 \times 10^{12}$  grammes (about four million tons) per second. Changes of energy and changes of mass are the same thing. For example, setting an electron in motion with a velocity 0.866 C. (C. = that of light) doubles its mass, but this represents an addition ( $=$  to  $mv^2$ ) of kinetic energy. An electron regarded as a negatively charged sphere has electrostatic energy  $\frac{2}{3} mv^2$ , and to satisfy the conservation of energy there must be further energy of unknown type of  $\frac{1}{3} mv^2$  to make energy in all equal to  $mv^2$ . Presumably the whole of this would be set free if the electron could be persuaded to explode and scatter to infinity. The energy  $mv^2$  may be called subelectronic energy, and if super-electronic energy is that due to motion, the two energies become equal at velocity 0.866 C., equivalent to 4,000,000,000° Centigrade. In the sun the ratio of the two energies is in the order of one of super-electronic to one million subelectronic.

The mechanism by which matter is annihilated would probably be falling together of positive and negative electric charges, that is if the electron on hydrogen fell further than its last orbit (from orbit 1 to orbit 0). All calculations of age of stars have been made on the assumption that their mass remained constant, but on the conception of diminishing mass the orbit would be an ellipse of ever-increasing size, and in 1,500,000 millions of years our year will have lengthened to 451 days.

### DENTISTRY

**Adrenalin in Local Anæsthetics.**—E. W. Fish ("British Dental Journal," II, 1924, p. 1257) has carefully investigated the cardio-vascular effects of local anæsthetics, with special reference to adrenalin, and among the conclusions reached is that the concentration of adrenalin chloride in a local anæsthetic solution should not be greater than 1:70,000 to 1:100,000, and the solution should be raised to boiling point immediately before injection. Great care must be exercised not to inject into a vein. If this inadvertently occurs and syncope with slow pulse supervenes, amyl nitrite is indicated as the antidote. It is also pointed out that it is of importance to observe first that the pulse is slow, since syncope is more likely to be due to dilation of the abdominal vessels, and if amyl nitrite were given in this condition, the cerebral anæmia would increase. In cases of heart affections adrenalin is contra-indicated for local anæsthesia.

**Stainless Steel for Dentures.**—H. J. Morris ("British Dental Journal," II, 1924, p. 1505), following experiments with stainless steel and rustless iron as bases for dentures, has come to the conclusion that these materials leave much to be desired. They will not retain a bright surface without attention. In resistance to alternating stress they are inferior to gold, and the extreme difficulty of soldering attachments to them practically rules them out of consideration for anything but full dentures. Moreover, vulcanite attachments tend to curl up at the edges, and the resulting gap shows a black discoloration. Also an inferior base requires more time and skill to make. There might be an average saving in the cost of the material as between a gold plate and a plate of stainless steel of £2 per plate, but against that a cracked gold plate is easy to repair, while a cracked steel plate is irreparable. In a later note the author refers to a new product called Stabrite Silver Steel ("The Ironmonger," September 27, p. 58), which is said to combine high resistance to corrosion with extreme malleability, and after cold working, no heat treatment is required. It is also claimed that it can be soldered without difficulty.

**Effect of Diet on Caries in Children.**—May Mellanby, C. L. Pattison and J. W. Proud ("British Medical Journal," II, p. 354) have attempted to ascertain if the results of the researches carried out on puppies by Mrs. Mellanby (C. & D., II, 1923, p. 441, and C. & D., I, 1924, p. 893) are applicable to man. Three groups of children, living in an institution and therefore under control, were taken. One set was placed on diet A, which included cod-liver oil, milk, and eggs, but no oatmeal. On the basis of the investigations referred to above, this diet, which has a potent effect in bringing about calcification, might be expected to increase the resistance of the body, and especially the teeth, to bacterial infection. The next group consisted of ten patients, who received diet B, similar on the whole to diet A—the chief differences being that it included oatmeal, very little egg, and less milk than diet A, and no cod-liver oil. The third group consisted of thirteen children chosen from patients on the ordinary hospital diet (diet C). They were selected so as to be comparable with the first two groups in age, duration of institutional treatment, etc. The average age, the period of investigation, and the dental condition before the first inspection were practically identical, the only obvious variation in the three groups was in the diet the

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children received. It is therefore this factor which is probably responsible for the differences observed in the dental changes. The average number of teeth per child showing a spread of caries previously present and new carious areas, together with the main differences in the three diets, is shown in the following table:—

Diet	Main difference in diet	Average No. of teeth per child in which caries has spread.
A	Abundant calcifying vitamin and calcium; small amount of carbohydrate, not including oatmeal	1.4
B	Less calcifying vitamin and calcium; much carbohydrates, including oatmeal	5.1
C	Intermediate amount of vitamin A, calcium, and carbohydrates; some oatmeal	2.9

In other words, the tendency for caries to spread was greatest in children receiving diet B, least in those receiving diet A, and intermediate in those receiving diet C.

### ESSENTIAL OILS

**Oil of *Perilla Citriodora*.**—S. Yamaguchi and Y. Ito ("Yakugakuzasshi," September 1924) report that on extracting the seeds of *Perilla citriodora*, Makins, with ether they obtained a yield of 26 per cent. of a yellowish-green drying oil exhibiting the following constants: Specific gravity (at 15°), 0.9357;  $n_D^{23}$ , 1.48026; acid number, 8.32; saponification number, 173.8; iodine number, 155.5; Hehner's index, 94.15; ester value after acetylation, 35.98.

**Eucalyptus Piperita.**—A. R. Penfold and F. R. Morrison reported recently on this product at a meeting of the Royal Society of New South Wales. It was formerly considered that the average yield of oil from this species was about 0.8 per cent. As a result of field observations, however, the authors have discovered that there is another form of this tree growing round Port Jackson, with a yield of about 2-2½ per cent. of oil, with a piperitone content of 40-50 per cent., as against a low piperitone content and a high proportion of cineol and eudesmol found in the other variety. On distillation of this Port Jackson species the lower boiling fraction distilling at 60°-75° yielded phellandrene. The fraction boiling at 100-110 at 10 mm. consisted principally of 7-piperitone. No cineol was detected in the terpene fraction.

**Calabrian Geranium Oil.**—F. La Face ("Rivista Italiana delle Essenze e Profumi," August 15, 1924) reports the results of an investigation into the oil distilled from *Pelargonium radula*, Ait., cultivated in the Calabrian Experimental Station. The oil, which was obtained by steam distillation of the fresh plant previously cut in pieces, as this was found to give a higher yield, viz., 0.08 per cent., than when the whole plant was submitted to distillation, exhibited the following constants: Specific gravity at 15°=0.8941; optical rotation at 15°=-10°; refractive index at 20°=1.4680; acid number, 3.4; ester index, 67.2; esters, 28.32. Ester index after acetylation, 203; total alcohols, 60.08 per cent.; free alcohols, 41.73 per cent.; citronellal, 39.3 per cent. These characteristics show that the Calabrian oil of geranium most closely approximates to the French oil, the relative proportions of geraniol and citronellal in both varieties being practically identical.

**Oil of *Helicrysum Saxatile*.**—This plant, which is found in various parts of Sardinia, yields an essential oil which was examined by L. Francesconi and E. Sergianotto ("Rivista Italiana delle Essenze e Profumi," August 15,

1924). The authors were able to obtain only 1.5 c.c. of oil, a yellowish liquid with a characteristic, pungent, but agreeable odour, resembling that of oil of rose, particularly in a very dilute solution. Specific gravity, 0.9020; refractive index, 1.4769; optical rotation, -11.71° (in a 13 per cent. concentrated alkaline solution, in a tube of 100 c.c.; the rotation was =-1.526°). It does not reduce ammoniacal solution of silver nitrate, and on shaking 0.85 c.c. of oil with 10 c.c. of a 20 per cent. solution of potassium hydroxide no diminution in volume occurs. At ordinary pressure it begins to distil over at 240°. The distillate, amounting to 0.1366 gram, had the following composition: CO<sub>2</sub>=0.3982; H<sub>2</sub>O=0.1490; C=79.5 per cent.; H=12.11 per cent. The authors believe that the oil possibly contains an oxygen derivative of sesquiterpene.

**Essential Oil of *Backhousia Sciadophora*.**—A. R. Penfold has examined this oil ("Journal of the Royal Society, N.S.W.," lviii, p. 113), and has reported on two consignments of leaves and terminal branchlets, which on steam distillation yielded about 0.3 per cent. of crude oil. The oil was mobile and of a dark brown colour, with a distinct odour of pinene. It was subjected to fractional distillation, and two fractions were obtained boiling at 154°-155° and 155½°-158° at 760 mm. The lower boiling fractions were found to consist mainly of *d*-α-pinene. The higher boiling fraction was saponified and repeatedly distilled over sodium at 10 mm. The small quantity of the resultant sesquiterpene closely resembled aromadendrene, but its exact determination was not possible owing to the small quantity obtained. A sesquiterpene alcohol was also present. The alkaline liquor after saponification was acidulated and steam distilled, and a small quantity of what appeared to be caprylic acid passed over. About 1.3 per cent. of a phenolic compound was also present in the crude oil. No crystalline derivatives could be obtained from this body.

**Oil of Iris.**—In the course of extracting the essential oil from the root of Florentine iris, P. Langlais and J. Goby ("Bulletin de la Société Chimique de France," October 1924) obtained a portion which proved to be completely soluble in solution of sodium carbonate. By distillation six fractions were isolated. The first fraction, a liquid distilling at 150°-151°, consisted of caprylic acid. The second fraction, 162°-163°, a liquid, was found to consist of pelargonic acid. The third fraction, 174°-175°, a solid, gave the highest quantitative yield, and proved to be capric acid. The presence of undecylic acid was demonstrated in the fourth fraction, obtained at 185°-186°. The fifth fraction, at 198°-200°, again proved to be crystalline, the yield equalling that previously obtained in the third fraction. This substance proved to be lauric acid. The sixth fraction, 210°-212°, yielded a small amount of a solid substance identified as tridecylic acid. In addition, in the second fraction traces of an acid, melting at 121°, which the authors assume to be benzoic acid, were observed. This investigation proves the existence of six saturated aliphatic acids in the concrete oil of iris, the chief point of interest being the presence of three acids with an uneven number of carbon atoms, which are rarely found in nature.

**Germicidal Value of Australian Oils.**—A paper by A. R. Penfold and R. Grant was published ("Journal of the Royal Society, N.S.W.," lviii, p. 117) in continuation of a previous paper on this subject (*C. & D.*, I, 1924, p. 446). The Rideal-Walker coefficients of about one hundred essential oil constituents, synthetics and isolates are examined, including many esters. The examination of these esters shows that the statement in the first paper that the coefficient of esters seems to depend upon the acid radical and is independent of the alcohol is only partly true. A remarkable coefficient was obtained for anthranilic acid; in aqueous solution the coefficient was 2, while in ethyl alcohol it was 12. Thus it would

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appear that, contrary to expectation, the dispersion is greater in alcohol than in water. Synthetic menthols were examined with a view to their comparison with the natural product, and it was found that their germicidal values are equal, the coefficient being in each case 20. In the former paper the coefficient of camphor was found to be 6, and this result was confirmed by the use of a somewhat turbid suspension in rosin soap solution. The addition of sufficient ethyl alcohol to produce a clear solution resulted in an increase of 83 per cent. in the germicidal value, the coefficient being 11. This confirms the suggestion that the germicidal value of a disinfectant is dependent upon the degree of dispersion.

**Citronellal Assay.**—Citronella oil is the principal raw material from which geraniol and citronellal are obtained. There are two varieties on the market, Ceylon oil and Dutch East Indian citronella oil, the latter containing a higher proportion of citronellal than the former. In view of the fact that hydroxy-citronellal is one of the most extensively used synthetic perfumes, it is important to establish the amount of citronellal present in the raw material employed for its manufacture, and for this purpose the customary geraniol-content test is not a reliable index. To remedy this defect, J. Dnpont and L. Labaune ("Chimie et Industrie," August 1924) propose a method of assay of citronella oil, which is based on the following considerations: On boiling for two hours a mixture of geraniol, citronellal, acetic anhydride and dried sodium acetate a mixture of geranyl acetate and isopnlegol acetate is obtained. On titrating the esters present in the mixture the total amount of geraniol and citronellal can be ascertained. If now the citronellal is transformed into citronellal oxime, and the mixture boiled for one hour with double its weight of acetic anhydride, the geraniol present is acetylated, while the citronellal oxime is transformed into citronellal nitrile. If the boiling mixture is now submitted to the action of alcoholic  $N/2$  solution of caustic soda, only the geranyl acetate is hydrolysed, while the citronellal nitrile undergoes no modification, hence only the content of geraniol in the mixture is ascertained and the difference between both results yields the amount of citronellal. The test, therefore, consists of two operations: (1) 10 grams of citronella oil, 10 grams of acetic anhydride, and 2 grams of dried sodium acetate are boiled for an hour and a half, and the total alcohol content determined by the customary method. This gives the total content of geraniol and citronellal present in the oil. (2) A solution of 10 grams of hydroxylamine hydrochloride in 25 grams of water is neutralised by the addition of a solution of 10 grams of sodium carbonate in 25 grams of water. This mixture is added to 10 grams of citronella oil, and the whole warmed to  $20^{\circ}$ – $25^{\circ}$  for two hours, with agitation. The supernatant oil is removed by decantation, washed with water, dried and heated to ebullition for one hour after adding double its weight of acetic anhydride. The total alcohol content is then determined in the same way as for any essential oil. On subtracting this figure from that obtained in the first test the result indicates the content of citronellal present in the oil.

### FIXED OILS AND FATS

**Rancidity Test.**—Basing himself on the results of investigations by Tschirch and Barben on the causes of rancidity in oils and fats, for which aliphatic aldehydes produced in the course of decomposition of the unsaturated fatty acids are held responsible, T. von Fellenberg ("Mitteilungen des Eidgenössischen Gesundheitsamts," p. 198, 1924) has found that the following test yields highly satisfactory results. The necessary reagent is prepared by dissolving 5 grams of inehsin in about 800 c.c. of warm water; after cooling, a concentrated solution of 12 grams of crystallised sodium sulphite and 100 c.c. of normal solution of hydrochloric acid are added, and the volume completed to 1,000 c.c. by the addition of water. The reagent must be kept protected from light. To apply the test, 1 c.c. of the oil to be examined, or 1 c.c. of the

molten fat mixed with 1 c.c. of petrol, is shaken for thirty seconds with 1 to 2 c.c. of the reagent; the mixture is then set aside for ten minutes. If the mixture remains colourless, the sample is deemed satisfactory; in the presence of rancidity the fat layer, or the aqueous layer, exhibits a red to violet-blue coloration. The author suggests as a standard limit of the lowest permissible degree of coloration the tinge produced in a control test using a solution containing about 0.02 gram of acetaldehyde in 1,000 c.c.

### MATERIA MEDICA

**The Alkaloids in Non-Fruiting *Datura*.**—The "Bulletin of the Imperial Institute" (Vol. 22, p. 134) gives analyses showing that deflowered plants of *Datura metel*, in which fruit formation is prevented, contain more alkaloid (0.36 per cent.) than the ordinary fruiting species (with 0.24 per cent. of alkaloid). Moreover, the alkaloid in the non-fruiting plants is nearly all scopalamine instead of being 80 per cent. hyoscyamine and only 20 per cent. scopalamine.

**Constituents of Han-ge.**—The tubers of *Pinellia tuberifera*, Ten., known in Japan as "Han-ge," and in China as "Pwan-hia," are extensively used in both countries to combat vomiting. An examination of the drug by S. Nakayama ("Yakugakuzasshi," July 1924) yielded 0.003 to 0.013 per cent. of an essential oil, and a fatty oil, containing about 20 per cent. of phytosterin,  $C_{27}H_{44}O$ ,  $H_2O$ , melting point  $136^{\circ}$ ,  $[\alpha]_D^{20}$ — $51.37^{\circ}$ , and palmitic acid, in addition to an unsaturated acid,  $C_{18}H_{34}O_2$ , melting point  $44^{\circ}$ ; boiling point,  $208^{\circ}$ – $216^{\circ}$  at 3 mm.

**Attractylon.**—On submitting rhizomes of *Atractylis orata*, Thunb., collected in Korea, to steam distillation, S. Takagi and G. Hongo ("Yakugakuzasshi," July 1924) obtained 1.5 per cent. of a yellowish, viscid oil, sp. gr. 0.985, optical rotation  $+46.5^{\circ}$ , saponification number 16.94, which on cooling deposits about 20 per cent. of a crystalline substance, to which the authors gave the name of "attractylon." Exposed to the air it speedily decomposes, forming a resin; however, it is stable when dissolved in organic solvents. On crystallisation from methyl alcohol, attractylon was found to possess the following characters: Melting point,  $42^{\circ}$ ; boiling point,  $131^{\circ}$ – $132^{\circ}$  (4 mm.); optical rotation,  $+39.65^{\circ}$ ; its composition answers the formula  $C_{15}H_{24}O$ .

**Aconitines.**—Additions to the already complex nomenclature of the aconitines are made by the Japanese investigators, R. Majima, H. Sugimoto and S. Morio ("Berichte," 57, pp. 1456–1476). Japaconitine A is the product from the mixed hydrobromides of the alkaloids from Japanese aconite root which crystallises readily from water. Japaconitine B hydrobromide is crystallised from alcohol-ether mixture, while amorphous Japaconitine C does not crystallise either from water or alcohol-ether. Isomeric alkaloids from various species of aconite are indicated in the above classification as Japaconitine A<sub>1</sub>, Japaconitine B<sub>1</sub>, and Japaconitine C<sub>1</sub>. Jesaconitine is the title proposed for acetylanisoyl-aconine obtained from aconite root, growing north of Tokyo, which contained only this alkaloid and another designated Japaconitine A<sub>2</sub>.

**Trilobine.**—On extracting the fresh root and rhizome of *Cocculus trilobus*, D.C., used as a remedy in Japan under the name of "Moku-bo-i," with alcohol, H. Kondo and T. Nakazato ("Yakugakuzasshi," September 1924) succeeded in isolating an alkaloid, for which they propose the designation "trilobine." The free base occurs as colourless prisms, melting point  $235^{\circ}$ , readily soluble in chloroform and in benzol, insoluble in petroleum ether and in water. Optical rotation at  $20^{\circ}$ — $-296.4^{\circ}$ . Its composition is represented by the formula  $C_{14}H_{11}NO_3$ . It has no reducing action, is insoluble in alkalis, and is not coloured by ferric chloride; it does not react with hydroxylamine, or with phenylhydrazine. The authors obtained from 1,000 grams

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of root extract 2 grams of trilobine, and also 1 gram of an alkaloid melting at 213°.

**Fugutoxin.**—This is a toxin derived from the ovaries, liver, spleen and subcutaneous tissues of several varieties of Japanese *Spheroides*, which is being used in Japan in the treatment of neuralgia and articular rheumatism. It is also designated as "tetradotoxin," and is applied therapeutically in a 1 and 5 per cent. solution. An examination of fugutoxin by F. Ishiware ("Archiv für experimentelle Pathologie und Pharmakologie," Vol. 103, No. 3 & 4, 1924) showed that it did not yield the reactions for alkaloids. It resists heating at 100° for three hours, but after four hours toxicity is diminished by 50 per cent. Melting-point 120°. It is resistant to trypsin, ptyalin, emulsion, invertin and bile, but is destroyed within four hours by a 0.2 per cent. solution of pepsin containing 0.5 per cent. of hydrochloric acid. It is apparently dextrogyrate, about +17° to 27°. This toxin causes paralysis of the motor and sensory nerves; applied locally, the nerve fibres of the region, of the ganglion cells, and of the striated muscles are paralysed, but smooth muscle and the sympathetic and parasympathetic nerve endings are not involved. Fugutoxin has no bactericidal action; it does not hemolyse erythrocytes, and fails to activate lecithin in serum hemolysis.

**Principle of Pituitary Gland.**—J. J. Abel describes ("Industrial and Engineering Chemistry," October, p. 1031) the preparation of a principle, in the form of a tartrate, which is 1,000 times more active than histamine, which previously was the most powerful stimulant known of plain muscle tissue. Posterior lobes are ground into a paste at the slaughterhouse and mixed with 0.35 per cent. hydrochloric acid and 4 grams of mercuric chloride to each 100 grams of paste. At the laboratory mercuric chloride is added in excess and the containers are agitated in a shaking machine for two hours. The coagulated protein is allowed to settle out when the principal or A substance is carried down, being adsorbed by the mercuric chloride protein precipitate. The stages of purification include preparation of phosphotungstate, tannate, and tartrate, and treatment with various organic solvents. The tartrate is finally obtained as a dry white precipitate which is very soluble in 94 per cent. alcohol, but this has not yet been obtained in a crystalline state. The tartrate relieves diabetes insipidus, and gives the same physiological reactions as pituitary extract from posterior lobe, and evidently contains only one active principle or hormone.

### MEDICINE

**Treatment of Coryza.**—E. Desesquelle ("Bulletin des Sciences Pharmacologiques," August-September 1924) recommends the following mixture as an inhalant in common cold:—

Menthol	...	...	...	0.25 gram
Camphor	...	...	...	15 grams
Oil of lemon	...	...	...	5 grams
Alcohol (90 per cent.)	...	...	...	100 grams

A few drops of this mixture are poured on a handkerchief and held to the nose.

**Sodium Salicylate Injections.**—Since 1908, A. Stéré ("Presse Médicale," November 19, 1924) has obtained excellent effects with hypodermic injections of sodium salicylate in the treatment of acute and chronic forms of rheumatism. He makes use of the following solution:

Sodium salicylate	...	...	20 grams
Cocaine hydrochloride	...	...	0.75 gram
Distilled water	...	...	100 grams

As much as 3 grams of sodium salicylate is injected subcutaneously or intramuscularly in the vicinity of the articulations or along the nerve tracts, and the injection is repeated twice or three times at intervals of three or four days. These injections are contraindicated in acute polyarticular, and also in gonorrhoeal and tubercular rheumatism.

**Lobeline in Carbon Monoxide Poisoning.**—The fact that on intravenous injection lobeline causes within a few seconds an enormous acceleration in respiration was utilised with success by M. R. Bousmann ("Klinische Wochenschrift," November 11, 1924) in three severe cases of poisoning by coal gas. On giving an intravenous injection of 0.01 gram of lobeline respiration was accelerated to a remarkable degree, the rate decreasing later and becoming more regular. Altogether two to four injections, at intervals of five to six hours, were made, with the result that consciousness returned and the patients made a rapid recovery. In view of these successful results, the author recommends the use of intravenous injections in other forms of intoxication; for instance, following the use of a morphine and scopolamine injection, in one case of which he succeeded in abolishing the Cheyne-Stokes breathing by injecting a dose of 0.005 gram of lobeline.

**Albert 102.**—This preparation, which is being subjected to clinical tests, is stated to be a new arsenobenzo compound containing about 20 per cent. of arsenium, characterised by its chemical stability. This is stated to be due to the presence of a biologically extremely active ketonic side chain to which is attached a hydrazin complex with a powerful antitoxic action. It is administered in the form of intravenous injections. After dealing with the results obtained with this preparation in animal experiments in trypanosomiasis and syphilis, F. Kalberlah ("Klinische Wochenschrift," November 25, 1924) reports on its use in the treatment of paralysis, tabes and multiple sclerosis. Particularly remarkable were the effects obtained in eleven cases of tabes, in which a decided improvement in the ataxy and in the severe lancinating pains was obtained with doses of 0.05 to 0.1 gram. However, the author points out that to obtain a definite improvement, the remedy must be administered for a prolonged period, treatment consisting in giving a course of 60 to 70, and in one case as much as 150 injections.

**Bayer "G. 1919" in Filariasis.**—G. C. Low and W. E. Cooke report on the result of treating a case of filariasis with the new product, Bayer "G. 1919" ("Lancet" II, 1924, 903). Bayer "G. 1919" is a coarsely granular powder, easily soluble in water or physiological salt solution, but the solution must not be kept for more than 24 hours. It is stated to be effective against syphilis, but is not as potent as salvarsan. Administration is by intravenous methods, and the amount recommended for each injection is 0.5 g. dissolved in 5 c.c. of sterile distilled water. One injection may be given weekly for ten weeks—e.g., a total of 5 g. in all. If given in larger doses nephritis and dermatitis may be caused, therefore it is not advisable to exceed the dose of 0.5 g. It was observed that during the time of treatment the average number of embryos per night was less than that of the short period preceding the first dose of the drug. No steady diminution took place, however, such as would have been expected were the drug acting in a beneficial manner and killing the adults; but it is noticeable that even after the prescribed course had been completed the counts showed a marked rise again. The authors conclude that the drug failed to justify the claim of its producers that it has a beneficial effect in cases of filariasis (*F. bancrofti* infection), and the hope that it would prove as effectual in this sphere as Bayer "205" in trypanosomiasis has yet to be demonstrated.

**Treatment of Inebriety and Drug Habits.**—Dr. Stanford Park states ("Lancet," II, 1924, 491) that up to the present no specific for the disease of inebriety has been found. After trying many drugs, and with the assistance and advice of Dr. Harrison Martindale, the author concludes that three substances were certainly of value used hypodermically. These were strychnine,  $\frac{1}{10}$  gr., twice daily; colloidal gold (steriles), 1 c.c., three times daily; and calc. glycerophos., 2 gr. in 3 c.c., 1.5 c.c. once daily. Given by the month, in frequent small doses, the following were all found extremely useful: nux vomica, cin-

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chona, kola, damiana, and gentian. Nux vomica by the mouth often gives better results than strychnine hypodermically. The following doses are best: Tr. nux vomica, m1 to m3; tr. kola, m10; tr. cinch co., m10; ext. damian. liq. m10, inf. gent. co. conc., m12. These are best given, with ext. glycyrrh. liq., m5 to m10, in a teaspoonful of water, every two hours from 8 a.m. to 3 p.m. The nux vomica can be increased or reduced according to indications, and the same applies to the damiana, which is most useful in certain cases. Ammon. brom., gr. 4, and pot. brom., gr. 1 to gr. 2, may be added at first, if indicated. "Catha" gr. 5 tablets (Martindale's ext.) removed the craving for alcohol and morphine and the depression attending their use in a remarkable way in many patients. Its action is somewhat similar to that of caffeine. Other drugs proved of use in some cases. Various hypnotics must be used, and the most useful are chloralamide, methylsulphonal, and luminal. In drug cases sulphonal is often best. One can give up to gr. 75 of chloralamide and gr. 60 of methylsulphonal. When one drug alone fails, an excellent night's sleep is often obtained by giving a dose of the second three hours after the dose of the first drug. Chloralamide is safe, and can be given to patients in very poor health.

**Treatment of Sea-Sickness.**—Vincent Moxey reports ("British Medical Journal," II, 1924, p. 1040) that chloral in the form of syrup was of the greatest value in sea-sickness. Brunton was right in teaching that chloral and bromide, properly used, would, practically at all events, prevent all suffering. The only difficulty is the administration and retention of the drugs. This is easily met by giving them per rectum. Last year, on the North Atlantic, the opportunity for trying this on a large scale occurred: the results were most gratifying. The incorporation of the drugs in the form of a suppository presented considerable difficulty, as the usual bases were quite unsuitable. Allen & Hanburys Ltd., have now prepared suppositories which stand the tropics perfectly. Two suppositories contain 15 grains of chloral and 30 grains of bromide. Subsidiary measures should not be neglected. These are recumbency (in bunk in cabin is the best), warmth, keeping the eyes shut, and the use of an abdominal belt. This treatment, found so valuable, possesses important advantages over oral methods of administration: (1) The therapeutic action of the drugs is certain, because no gastric disturbance can interfere with it. (2) Absorption of the drug is more certain, and the effect is prolonged. (3) It causes no gastric disturbance such as occasionally results from the use of other remedies for sea-sickness. The best results are obtained by using the suppositories in the following manner: As a preventive, one should be inserted morning and evening for the first three days at sea. If the patient is sick when first seen a suppository should be administered at once, and repeated every two or three hours, as required, for four doses. If the sea passage is short, a suppository should be used three hours before going on board, and again before the ship starts. There is no danger whatever provided the administration is stopped when somnolence supervenes.

**Treatment of Pruritus Ani.**—Dr. Savatard, in reviewing the various treatments of pruritus ani, ("Lancet," II, 1924, p. 924, includes the following:—*Carbolic acid*, which often acts like a charm, may be used as a lotion (1 in 80) or as a liniment (1 in 20 of olive oil), and compresses soaked in these applications used as the symptoms demand. It may be combined with sodium hyposulphite in a lotion, or with cocaine or mercury in ointment or lotion form—e.g., Acid. carbol. gr. xv.; cocainæ hydrochlor. gr. x.; paraffin. moll. ad 3j. Acid. carbol. gr. xij.; eocainæ hydrochlor. gr. x.; aq. lauro-cerasi 5ij.; aq. rosæ ad 3j. Acid. carbol. gr. xx.; hyd. perchlor. gr. ij.; ol. lini. 3j.; paraffin. moll. ad 3j. When the itching is intense or when it extends within the rectum, a half-grain cocaine suppository affords untold relief, but such treatment should be cautiously adopted, especially in a neurotic patient; ung. gallæ cum

opio has been found equally efficient. *Cycloform* ointment (5 per cent. with lanolin base) and 5 per cent. *anæsthesin* ointment are also helpful. *Tar*, has its advocates. The *sapo carbonis* detergens is desirable for washing the parts and the liq. carb. deterg. or the liq. picis carb., 5ij.—5iv. to the pint of water as a lotion. It is also useful in the following ointment:—Acid. salicyl. gr. xv.; liq. picis carb. mxx.; hydrarg. ammon. gr. xv.; paraff. moll., adipis lanæ hydr. aa. 3ss. Mercury is the most useful antiseptic either in ointment 3ss. to 3j. of vaseline, or hydrarg. ammon. gr. xv. to 3j benzoated lard, or in the following lotion hydrarg. perchlor. gr. ij.; glycerin. 3v.; aq. chloroformi ad 3x. After the morning toilet calomel in powder may be dusted on the parts, or, better still, rubbed into the affected region by the patient. After the daily evacuation of the bowels the patient is instructed to clean and dry the parts and then to rub in 20 gr. of calomel. Such treatment, repeated for a few days, has in some instances produced most gratifying results.

### OPTICS

**Intra-ocular Tension in Myopia.**—F. W. Edridge-Green ("Lancet," II, 1924, p. 883), referring to his theory that myopia is produced by increased intra-ocular tension caused by back pressure through the veins of the eye, states that further observation has led to unexpected results. Not only does the myopia remain stationary on the advice given below, but it may diminish, and in some cases the eyes may even become emmetropic. The patient should avoid any exercise which causes the veins of the neck to stand out, as, for instance, lifting a heavy weight in a stooping position, moving up and down on the hands or the use of dumb-bells, and not to bend over a book in reading or writing. There is no need to restrict the reading so long as this is done with comfort. The eye evidently possesses a power of contracting under diminished intra-ocular tension.

**Miners' Nystagmus.**—F. Fergus ("Lancet," II, 1924, p. 1120) states that the oscillatory movements of the eyeball are not always present in this condition, but there are frontal and occipital headache, tremors of the head, vascular disturbances, photophobia, vertigo, and usually a history of the onset of visual disturbances. These symptoms suggest a wide involvement of nerve centres. Photophobia is sometimes absent, but visual acuity is practically always reduced, and this latter is of considerable value in cases of doubtful diagnosis. There may be nystagmus with diminished visual acuteness without the case being one of miners' nystagmus. Visual acuteness in miners' nystagmus may be due to one of two causes, or to a combination of them. The first is, that the rapid movements of the eyes prevent the proper stimulation of the macula. In the second place, there is, in almost all cases of the disease, considerable pain at the back of the head, and this may indicate a lesion at the pole of the occipital cortex, involving the centres concerned with visual acuteness. A considerable number of cerebral centres seem to be involved in the disease and those centres are probably co-ordinated to each other. But the causal agent does not seem to affect any centres in the medulla or cord. The complaint may be due to a definite and specific micro-organism, and this might explain cases of the condition being more abundant in some districts than in others. In support of the idea was the fact that miners' nystagmus is accompanied by a good deal of constitutional, and even mental, disturbance.

**Tinted Lenses.**—Sir Arnold Lawson ("British Medical Journal," II, 1924, p. 719) states that tinted lenses seem to be prescribed in an indiscriminate and indefinite way in order to get rid of the ultra-violet bugbear, yet only ultra-violet rays of very narrow and harmless wavelength reach the retina under normal conditions. This also applies to the infra-red rays. Peacock blue lenses of 2 mm. thickness shut off the red, orange, and part of the green rays, and also interfere with the blue and violet, and

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eliminate the ultra-violet, but similar glass 0.5 mm. in thickness lets through a great deal more both of the red and of the violet. Taking glass of 2 mm. thickness, his investigations show that the old London smoked glass, from the point of view of protection against ultra-violet radiation, is almost as good as the deeper shades of Crookes glass, and that as regards the red end of the spectrum it is better than the Crookes. To eliminate both ends of the spectrum, peacock blue should be used. The violet end of the spectrum is absorbed best by feuзал glass. Crookes A and A2 are not really tinted glasses, but they furnish a useful way of protecting a sensitive eye in mild glare, and do not disfigure the face or alter the colour values. For patients with healthy eyes, but who are physically or mentally abnormal, Crookes glass, especially B and B2, are excellent; but too much protection should be discouraged, and as the patient improves in health, the wearing continuously of some kind of tint should be gradually abandoned, because it is likely to become a pernicious habit. Cataract due to glass-blowing is caused by infra-red rays, and tints such as feuзал 4 or 5 or peacock blue afford the best prophylactic. Nothing is more harmful in the early stages of cataract than exposure to bright light of any kind. In cases in which a habitual tint was wanted nothing is more comfortable than Crookes glass, but in active inflammatory diseases of the retina and choroid peacock blue is to be preferred.

### PHARMACOLOGY

**Calcium of the Skin.**—According to Gans ("Archiv. für Dermatologie und Syphilis," Vol. 145, p. 135), calcium and potassium accumulate in the epidermis of the skin of eczematous persons. In normal skins calcium is practically absent from the epidermis, though it is present in the underlying tissues.

**The Action of Digitalis.**—H. Vaquez ("Archives Maladies du Cœur, des Vaisseaux et du Sang," October 1924, p. 609) reviews modern theories of the action of digitalis, the indications for its use, and the method of prescribing it. He states that the collection of digitalis leaves is particularly unsatisfactory; many specimens of the drug are almost inert owing to improper methods of collecting and drying the leaves, which contain oxydases capable of producing profound chemical changes in the glucosides should fermentation occur. He finds "digitaline cristallisée" (Nativelle, 1868) still the most reliable preparation. Vaquez advances several objections to standardisation of the infusion and tincture by animal experiment, and asserts that advances in our knowledge of the action of digitalis have been due to clinical observation rather than to physiology.

**Action of Insulin.**—In the course of an investigation into the action of a number of vegetable extracts (mushroom, horseradish, beetroot), prepared according to the methods adopted for the isolation of insulin, R. Wasicky ("Klinische Wochenschrift," September 30, 1924) established the existence of a direct relationship between the property of reducing the amount of sugar and the catalytically oxidising activity of these extracts. The author was able to establish that the peroxylase obtained from horseradish and the tyrocinase from mushrooms, as well as the catalase from sheep's liver, produce on subcutaneous injection a considerable decrease in the blood-sugar content. An examination of a number of commercial insulin preparations showed that they all contained peroxylases and aldehydases, and that those processes which are detrimental to the oxidation ferments also inhibit and destroy its action in decreasing the blood-sugar content. The addition of enterokinase to insulin increases its power of reducing the content of sugar in the blood.

**Therapeutic Use of Synthetic Camphor.**—In a critical review of the pharmacological action of camphor, F. Kraus ("Medizinische Klinik," June 1, 1924) advocates the inclusion in the pharmacopoeia of synthetic camphor. It is true that pharmacologists are yet divided in

their views on the efficacy of synthetic camphor compared with the natural product, but the author attributes the reported divergence in results largely to variations in the preparations used and the tests applied. In clinical as well as in private practice, Kraus has found that injections of 0.2 to 0.5 gram of synthetic camphor produce the same action on the heart and vasomotor centre as natural camphor. In this connection it may be mentioned that at the beginning of the war the German Medical Board permitted the use of synthetic camphor in official preparations for external application, but deprecated its subcutaneous and internal administration. Later, when natural camphor became very scarce, the Board itself invited medical men attached to clinics and hospitals to investigate the action of synthetic camphor on patients. In conclusion, Kraus draws attention to the necessity of establishing definite tests for synthetic camphor, the principal impurities being the presence of pinene hydrochloride, camphene, borneol, isoborneol and alcohols.

**Iron and Arsenic Preparations.**—In an abstract of the report of Professor Morawitz to the German Joint Commission on Medicaments ("Klinische Wochenschrift," Oct. 7, 1924), the properties of iron medicinal preparations are given as follows:—The author points out that the preparations of iron used in medical practice should be (1) absorbable, (2) they should produce no injurious effects in therapeutic doses, and especially no dyspeptic symptoms. To prevent the formation of astringent iron salts in the stomach, iron should never be given on an empty stomach, and alkalis should be administered with these drugs. The author divides iron preparations into two groups: (1) those easily decomposed; (2) those from which the iron is separated with greater difficulty. He recommends reduced iron, pills of reduced iron, saccharated carbonate of iron, Bland's pills, saccharated ferric oxide, tinctura ferri pomata (prepared with fermented extract of apples), liquor ferri albuminati, lactate of iron, and pills of lactate of iron, in private practice, and when a rapid effect of iron is desired. The numerous hæmoglobin preparations need not be considered amongst the active iron preparations, though they may be of service independently of the iron they contain. Arsenic should be given by mouth in cachexia, nervous affections, lichen, psoriasis, etc., but by injection in parasitic diseases. When a powerful action of arsenic is required, and dyspeptic symptoms are not feared, the form of pil. Asiatica is recommended. Arsacetin (sodium acetylarsanilicum) is especially recommended in pernicious anæmia, leukæmia and lymphadenoma. Atoxyl has produced injurious effects. Salvarsan preparations may, he thinks, be of service, in addition to their effects in syphilis, in recent cases of gangrene of the lungs, in alveolar pyorrhæa, in Vincent's angina, and periarteritis nodosa; they are very useful in recurrent fever and malaria (except in the malignant form) as an aid to the quinine treatment. Neosalvarsan and silver-salvarsan are the preparations recommended.

### PHOTOGRAPHY

**Rapid Fixing.**—An investigation by A. and L. Lumière and A. Seyewetz ("Revue Française de Photographie," 1924, 118, p. 294) shows that the acceleration of fixing by the addition of ammonium chloride to the bath only occurs in the case of plates containing iodo-bromide of silver. The more iodide in the plate, the greater is the increase in the rate of fixing. It was found that fixing takes place at the same rate in a 40 per cent. solution of hyposulphite of sodium as by any addition of ammonium chloride to a weaker solution, hence it is preferable to use the plain bath at sufficient concentration.

**New Desensitisers.**—Pathé-Cinema Laboratories ("Revue Française de Photographie," 1924, 117, p. 286) find that basic scarlet N, manufactured by the Cie Nationale des Matières Colorantes, is a desensitiser which compares favourably with those in general use. Used as a preliminary bath, at a strength 1 in 10,000, it forms a perfect desensitiser, and both panchromatic and ordinary

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plates may be developed without fog by a fairly bright orange light. This dye does not stain the skin, nor the nails, and never causes chemical fog. It is pointed out that many dyes which might be used as desensitizers cause chemical fog, even in very weak solutions. The authors have found that certain other dyes possess the power, when added to those which cause fog, of destroying the fogging action, but leave intact the desensitising action. The amount of protecting dye required varies considerably, but has been determined in a few cases, the following formula being given as an example of a good preliminary bath:—

Rhoduline violet, purified (Bayer) ...	0.06 gm.
Acridine yellow ... ..	0.01 gm.
Water ... ..	1000.0 c.c.

The proportions should not be altered or the balance will be upset; also at a stronger concentration there is danger of chemical fog. Methylene blue may also be used, the following being a good formula:—

Methylene blue ... ..	0.005 gm.
Acridine yellow ... ..	0.020 gm.
Water ... ..	1000.0 c.c.

In this case the bath is extremely dilute and the negatives are not coloured. Another satisfactory formula is:—

Rhoduline sky blue (Bayer) ... ..	0.005 gm.
Acridine yellow ... ..	0.015 gm.
Water ... ..	1000.0 c.c.

With this bath the negatives do not show the least colour. Other combinations which may be used are:—Ester yellow with auramine; malachite green with auramine or acridine yellow; victoria blue with auramine.

**Fogging Properties of Developers.**—M. L. Dundon and J. I. Crabtree, in a communication from the Eastman Research Laboratory ("British Journal of Photography," II, 1924, p. 701) describe a number of experiments relating to the fogging properties of developers. The various kinds of fog are classified as follows:—*Emulsion*, which is the result of the presence of developable grains in the unexposed emulsion; *Aerial*, due to the exposure of the partially developed film to air; *Development*, resulting from chemical impurities, such as metallic sulphides; *Solvent*, due to physical development by silver dissolved in the developer: *Vapour or Gas*, being caused by exposure to the vapours of such substances as turpentine and resins; *Light*, owing to accidental exposure to white or "unsafe" light. Under certain conditions sulphide is formed by bacteria, which may live in a developer and reduce the sulphite. It was found that, normally, neither the order of mixing M.Q. developer nor the staleness of the solution had any connection with fogging until staining became serious. It is necessary clearly to distinguish between aerial fog and tank fog. By the latter is meant the total fog produced when a film is kept immersed during the whole time of development, so that little or no aerial effect takes place. It consists of chemical development fog, together with any inherent emulsion fog which may be present, and possibly a trace of aerial fog. Oxidised developing agents both desensitize against light-action and prevent aerial fog, and it was found that an aerial fog reaching a density of 0.8, produced by an M.Q. developer with low sulphite, was entirely prevented when one part in a hundred thousand of pinakryptol green was added to the developer; even one part in a million diminished the fog very appreciably. Under certain conditions a precipitate is formed by pinakryptol green in a hydroquinone developer, and this fact limits the concentration that can be used. Phenosafranin is also satisfactory. Pyro added to a metol-hydroquinone developer is quite effective in preventing aerial fog, but shortens its life by increasing aerial oxidation, and is, therefore, less desirable for this purpose than a desensitising dye. The characteristic absence of fog on pyro-developed negatives is undoubtedly a result of the anti-aerial fogging action of pyro. The fact that developers conditioned by use give less tank-fog than fresh ones has been confirmed.

### VETERINARY MEDICINE

**Dye Test for Liver Function.**—H. E. Hornby ("Veterinary Journal," 1924, p. 469) considers that a test for liver function based on the rapid removal of phenol-tetrachlorophthalein from the blood stream by the normal liver, which has given satisfaction in human medicine, does not appear to be of equal value in bovine practice, even if the initial disadvantage of expense be overcome.

**Circulatory Stimulants.**—A. D. Hirschfelder and E. A. Hewitt ("Journal of the American Veterinary Medical Association," October, 1924, p. 75) state that, in spite of the wide use of strychnine and camphor as circulatory stimulants, accurate clinical observations throw considerable doubt upon their effect. The best circulatory stimulant for the larger animals is adrenalin injected directly into the blood stream. A 1,400-lb. horse was anaesthetised with chloroform, and 2 c.c. of spirit of camphor injected in the right jugular vein at 11.36 a.m. This produced no noticeable effect on blood pressure or respiration, but at 11.47 a.m. transitory convulsive movements set in. These passed off. At 11.50, another 2 c.c. of spirit of camphor was introduced. This was also without effect on blood pressure, but at 11.55 convulsions set in again. At 12.05 4 mgs. (1/16 grain) of strychnine was injected. This also was without effect upon blood pressure, but transitory convulsive movements set in within a few seconds. Later in the experiment, doses of 4 mgs., 8 mgs., and 16 mgs. were injected intravenously, but produced no discernible effect on blood pressure. The animal proved highly resistant to strychnine and received in all half a grain without a fatal result. Another horse was killed by a quarter of a grain in a single dose. In this case also there was no discernible effect on blood pressure. In contrast to this, a relatively small dose of adrenalin (1 mg.), intravenously, gave a marked rise of blood pressure. Adrenalin injected into the pectoral muscle, in doses of 4, 10, 20 and 50 mgs., gave little effect.

**Vermicidal Value of Iodine.**—W. L. Chandler (Michigan Experiment Station "Quarterly Bulletin," 1924, 3, p. 112) has produced a crystalline form of iodine which differs from the sublimed in several respects. It appears to be more readily soluble in water, castor oil and other solvents, and aqueous solutions have a disinfectant value greater than any of the known iodine solutions. According to tests made by Parke, Davis & Co., the aqueous solution appears to have a phenol co-efficient about two and a half times that of solutions of sublimed iodine containing the same amount of iodine. The exact nature of the preparation, which is termed "hyperactive" iodine, is stated still to be problematical. The aqueous solution has proved to be efficient as a practical surface disinfectant against ascarid eggs in swine farrowing pens and against ascarid eggs and hookworm larvae in silver fox dens. Experiments on a large number of swine, sheep and poultry have been carried out with castor-oil solutions of the "hyperactive" iodine and a casein iodine compound. Four ounces of castor oil containing one gram of the iodine per ounce of oil was apparently 100 per cent. efficient, against ascarids in swine, and half an ounce of the same strength solution was efficient against ascaridia heterakids in poultry. The dried powdered casein compound suspended in 4 ounces of mineral oil appeared to be 100 per cent. efficient against stomach worms in sheep; and given in large amounts removed hookworms and nodular from their intestines. This new vermicide, to be called Vermiodin, is a black powder of light weight and is capable of liberating, gradually, free iodine in the fourth stomach of sheep, and in the small intestines of various animals. It appears advantageous to mix it to a thin paste with mineral oil, as this (1) prevents too rapid liberation of free iodine; (2) prevents irritation to the digestive tract; (3) the oil mixture administered to sheep floats on the surface of the contents of the paunch and insures the rapid passage of the vermiodin into the fourth stomach.

## Personalities

MR. T. W. TOWNLEY, Ph.C., Keswick, has been appointed a magistrate for the county of Cumberland.

MR. RICHARD B. PILCHER, secretary of the Institute of Chemistry, has been appointed a Vice-President of the Chartered Institute of Secretaries for the ensuing year.

MR. JOHN CUMMING, chemist and druggist, Mayor of Crewe, has presented a cup to the golfing section of the Crewe Tradesmen's Association, to be awarded in competition.

MR. R. L. MORLAND, druggist, Worthington, Minn., U.S.A., has been elected M.W.M. of Fraternity Lodge, No. 101. This is the second occasion on which Mr. Morland has been appointed to the Master's chair.

PROFESSOR DR. STEFAN MINOVICI, Dean of the Pharmaceutical Faculty in the University of Bucharest, to whose untiring efforts its creation recently was chiefly due, has been appointed professor of organic chemistry in this faculty, and also in the faculty of physical chemistry.

MR. HENRY M. LLOYD, J.P., Merthyr Tydfil, member of the Pharmaceutical Society's Council, has been appointed to fill the vacancy caused by the death of Mr. Leopold Joseph, J.P., Cardiff, on the Welsh Consultative Council of the Welsh Board of Health.

MR. MAURICE HOLMES, younger son of Mr. C. M. Holmes, chemist and druggist, Upper Clapton Road, London, E., has won an open scholarship at Corpus Christi College, Cambridge. Mr. Holmes is holder of the Sir David Salomon's scholarship and captain of the City of London School.

MR. A. J. BRADLEY, M.Sc., elder son of Mr. T. H. Bradley, chemist, Staveley, has been successful in obtaining the degree of doctor of philosophy at Manchester University. Dr. Bradley was educated at Chesterfield Grammar School, from there gaining a Derbyshire County major scholarship and also the James Gaskell open scholarship for science. He commenced his studies at Manchester University in 1916, and after two years in the Army, received the degree of B.Sc. (with honours in chemistry) in 1921, and the degree of M.Sc. in 1922. During the past two years Dr. Bradley has been engaged in research on the investigation of crystal structure under Professor W. L. Bragg, F.R.S.; the Ph.D. degree was awarded for a thesis embodying the results of this work. He is at present carrying out research for Metropolitan-Vickers Electrical Co., Ltd., Manchester. Mr. C. A. Bradley, his younger brother, who was also educated at Chesterfield, recently obtained the B.Sc., first class with honours in civil engineering, and is now with a firm of civil engineers in Manchester.

## Almanacs and Calendars

BURGOYNE, BURRIDGES & CO., LTD., manufacturing chemists, East Ham, London, E., send out a smartly printed office calendar (4 in. by 5 in.) in red and gold, showing a month at a time.

THE R. H. HEWARD CO., surgical appliance manufacturers, Twickenham, issue a vest-pocket calendar (2 in. by 1½ in.), neatly bound in flexible leather and provided with postal and other information in remarkably compact form.

MR. JAMES B. DORAN, Ph.C., Aliwal North, Cape Colony, sends us a copy of his artistic wall-calendar (9½ in. by 19 in.), the chief feature of which is a colour print entitled, "Where the Old Folks Live," depicting an enviable homestead in rural surroundings.

MR. FREDERIC R. ELLIS, F.C.S., chemist and druggist, 122 Coldharbour Road, Bristol, is distributing a calendar in folder form (3½ in. by 6½ in. when opened), containing memoranda on his own proprietaries and other goods. The effect on business has, we learn, already been good.

## Deaths

BANA.—At Navsari, Bombay, on November 1, Mr. Rustomji H. Bana, soap and perfumery manufacturer, aged eighty. Mr. Bana established his factory, the first of its kind in India, fifty years ago: his products were awarded gold and other medals at exhibitions in London and Antwerp, as well as in India. He also distilled rectified spirit and carried on a business in drugs. For several years Mr. Bana was a member of the Royal Society of Arts of London. The business will be continued by his heirs.

BOLGER.—At a nursing home in Dublin, on December 9, Mr. James Joseph Bolger, Ph.C. Mr. Bolger, who passed the Licence examination in 1903, carried on business for several years in Tullow Street, Carlow.

CALDER.—At a nursing home in Aberdeen, on December 16, Mr. Patrick Davidson Calder, beloved father of Mr. A. W. Calder (representing Ayrton, Saunders & Co., Ltd., Liverpool), 256 Crow Road, Broomhill, Glasgow.

KILNER.—At 32 Roman Place, Leeds, on December 9, Mr. Frederick Cecil Kilner, chemist and druggist, aged forty.

MUNN.—At Stourport, on December 10, Mr. Charles Henry Munn, chemist and druggist, aged seventy-eight. Mr. Munn, who passed the Modified examination in 1874, carried on business in Stourport for a long period.

SOLLITT.—At York, on December 9, Mr. Arthur Sollitt, chemist and druggist, aged sixty-seven.

STEVENSON.—At West Ham, on November 22, Mr. Thomas Henry Dable Stevenson, chemist and druggist, aged forty-two.

WOOD.—At Seaton Carew, on December 4, Mr. Henry Wood, chemist and druggist, aged seventy-one.

## Westminster Wisdom

By the "C. & D." Parliamentary Representative.

### PARLIAMENT ADJOURNS

Parliament adjourned on December 19 until Tuesday, February 10.

### BRITISH SUGAR SUBSIDY

The British Sugar (Subsidy) Bill was read a second time in the House of Commons, on December 19. The Bill is to provide for the payment of a subsidy in respect of sugar and molasses manufactured in Great Britain during a period of ten years beginning on the first day of October, 1924, from beet grown in Great Britain, and to charge a duty of excise on sugar and molasses manufactured in Great Britain and Northern Ireland from beet grown in those countries.

## Coming Events

This section is reserved for advance notices of meetings or other events. These should be received by Wednesday of the week before the meetings, etc., occur.

### Thursday, January 1

Pharmaceutical Society of Great Britain (East Metropolitan Branch), Manchester Hotel, Aldersgate Street, E.C. New Year's Party. Reception at 6.30 p.m. Tickets (3s. 6d. each) from secretary or members of the Committee.

Royal Institution of Great Britain, 21 Albemarle Street, London, W., at 3 p.m. Juvenile Xmas Lectures (Lecture III). "Concerning the Habits of Insects," by Frank Balfour Brown. Lecturer on Entomology, Cambridge University. (Lecture IV on January 3.)

### Friday, January 2

Chemists' and Druggists' Society of Ireland.—Mr. W. Haughton Crowe, M.Sc., Queen's University, Belfast, will give an address on "Electrons."

SALE OF PROPERTY.—A chemist's shop at Great Yarmouth, rented at £22 per annum, was on December 10 sold at auction for £300.

## Trade Notes

"PREMIDO." IODISED SALT is one of the new brands of table salt which are slightly medicated with an iodide and are intended to ward off goitre. For this purpose the salt is used in place of ordinary table salt. The "Premido" brand, sold in packets, is made by Geo. Hamlett & Sons, Ltd., Winsford.

ZEISS REFLECTOR LAMP, used for shops, offices and shop-window lighting, is in the form of a parabolic mirror with a silvered back, and has a frosted convex glass front. It is used where electricity is available as an illuminant and is calculated to effect a saving in the consumption of current. The distributors in this country are J. W. Atha & Co., 8 Southampton Row, London, W.C.1.

PETROLAGAR.—Deshell Laboratories, Ltd., Sentinel House, Southampton Row, London, W.C.1, are introducing Petrolagar to the medical profession and the drug trade of this country. This is a preparation which enjoys considerable popularity in the United States. Petrolagar is an emulsion of medicinal liquid paraffin of high viscosity with agar-agar, and is employed as an intestinal lubricant for promoting peristalsis. It is a beautifully made emulsion with a very pleasant taste. There are varieties of Petrolagar, distinctively packed, as follows: No. 1 plain; No. 2, with phenolphthalein; No. 3, alkaline; and No. 4, unsweetened, the uses of which are obvious. The propaganda in connection with Petrolagar is to be conducted on strictly ethical lines, so that the medical profession can order the preparation as a non-secret one. Petrolagar retails at the protected price of 6s. 6d. per bottle.

"SPA-RADIUM."—Sparklets, Ltd., Edmonton, London, N.18, this week introduce to the trade a novelty in the well-known "Sparklet" method of preparing radioactive aerated water. This consists in combining radium emanation with the liquid carbon dioxide for charging syphons of water. These "Spa-Radium" bulbs are made in several varieties: No. 1 "E," bulbs, each contain 1,400 Mache units; No. 4 "E," 5,000 units; No. 4 "F," 5,600 units, charged with oxygen; and No. 8 "F," with 11,200 units, charged with oxygen. The first mentioned is the one which is usually sold, whilst the last is supplied on prescription. The varieties containing oxygen require the use of a special tube holder, if employed with "F" size tubes with Sparklet "C" syphon. No. 1 "E" Spa-Radium bulbs retail at the protected price of 7s. 6d. per box. The company's advertisement in this issue gives further details.

CHRISTMAS GREETINGS.—The following business houses are wishing their customers and friends the season's greetings through advertisements in our issues:—

Addis, R., & Son  
Allen & Hanburys, Ltd.  
Ayrton, Saunders & Co., Ltd.  
Berton, Arthur, Ltd.  
Bourjois, A., et Cie, Ltd.  
Bush, W. J., & Co., Ltd.  
Carnegie Bros.  
Cartwright, W. B., Ltd.  
Coty (England), Ltd.  
Demuth's Laboratories, R.  
Eno, J. C., Ltd.  
Ford, T. H., Ltd.  
Gibbs, D. & W., Ltd.  
Greiff, R. W., & Co., Ltd.  
Harley, Thos.

Kerfoot, T., & Co., Ltd.  
Lorimer-Marshall, Ltd.  
Maw, S., Son & Sons, Ltd.  
May, Roberts & Co., Ltd.  
Owbridge, W. T., Ltd.  
Reddgrave, Butler & Co., Ltd.  
Royle, John W., Ltd.  
Sangers  
Smith, T. & H., Ltd.  
Spurway et Cie, Ltd.  
United Chemists' Association, Ltd.  
Waide, T., & Sons, Ltd.  
Whitaker & Co.  
Wigglesworth, Ltd.

RATING AFTER SHOP IMPROVEMENTS.—The effects of the present system of increased rating for improved premises were discussed recently by the Doncaster Chamber of Trade. One speaker went so far as to advise traders not to put in new fronts, because it was invariably found that the trader who made the least show and was the least credit to his town got off more lightly in rating than those who pushed business and improved the streets by better shops.

## Retail Pharmacists' Union

**Derby.**—At a meeting of the Derby Branch, on December 9, Mr. Clayton Smith in the chair, Mr. Tranmer (Smethwick) explained the various policies offered by the Chemists' Mutual Insurance Co.

**Eastbourne.**—At a recent meeting of the Eastbourne branch, Mr. Herbert J. Martin (member of the R.P.U. Executive) gave an address on Chemists' Mutual Insurance. In addition he outlined the history of the Union and the Chemists' Defence Association.

**Ipswich.**—A meeting of the Ipswich and Suffolk branch was held on December 10, the chairman (Mr. J. C. Wiggins) presiding. A vote of sympathy with Mr. Douthwaite, Felixstowe, on the death of his younger son was passed. Mr. G. W. Hales then gave an address on *Arranging a Pharmacy*. The Ipswich and Suffolk Chemists' Association was recently wound up and merged into the above branch, with the following officers: *President*, Mr. J. C. Wiggins; *Secretary and Treasurer*, Mr. E. H. G. Bennett; *Committee*, Messrs. Davis, J. C. Hill, J. A. Symonds.

## Insurance Act Dispensing

Record of matters concerning Chemists' interests in the National Health Insurance Acts.

### ENGLAND AND WALES

#### December Drug Tariff

The following are the alterations for December in the Insurance Drug Tariff for England and Wales:—

**Lower.**—Aloinum, 10d. oz.; bism. carb., 11s. 9d. lb.; bism. oxid., 1s. 9d. oz.; bism. salicyl 1s. 1d. oz.; bism. subgal., 1s. 2d. oz.; bism. subnit., 10s. 9d. lb.; camphora (flowers), 5s. 4d. lb.; collod. salicylic. co., 8s. 6d. lb.; ext. casc. sagr. sicc., 1s. 2d. oz.; ferri et ammon. cit., 3s. 4d. lb.; guaiacol carbonas., 1s. 7d. oz.; liq. bism. et am. cit., 1s. 9d. lb.; menthol, 6s. 6d. oz.; methylsulphonal, 3s. oz.; phenacetin., 10d. oz.; phenolphthalein, 11d. oz.; salol, 7l. oz.; sennæ fruct. Tinnev., 2s. 9d. lb.; spt. ætheris, 6s. 4d. lb.; strych. hydrochlor., 4s. oz.; sulphonal, 2s. oz.; tr. sumbul., 10l. oz.; zinc sulphocarb., 2s. 6d. lb.

**Higher.**—Acid. hydrobrom. dil., 1s. 2d. lb.; adeps præp., 1s. 4d. lb.; ammon. brom., 3s. 2d. lb.; aq. menth. pip., 11d. lb.; emuls. chloroform., 1s. 6d. lb.; ext. ergotæ, 3s. oz.; ext. ergot. liq., 7s. lb.; inf. cascarril. (ex conc), 5s. lb.; ol. amygdalæ, 6s. lb.; ol. menth. pip., 62s. lb.; ol. morrhuae, 9s. 6d. gall.; pot. brom., 2s. 6d. lb.; sodii brom., 2s. 10d. lb.; spt. menth. pip., 30s. lb.; tr. cimicifugæ, 5s. 6d. lb.; tr. ergotæ ammon., 7s. lb.; ungu. simplex, 4s. lb.

### SCOTLAND

**Stirlingshire.**—At a recent meeting of the Insurance Committee a communication was considered regarding the increase in the number of prescriptions and an increase in the average cost of those prescriptions. Dr. Morrison, Bannockburn, explained that the Panel Committee and the Pharmaceutical Committee had reported that they found no proof of any excessive prescribing in Stirlingshire. In comparing the figures for 1923-24 they had also to consider the figures for 1921 and 1922. The doctors felt that it was only now that people were feeling the full effects of the abnormal climatic conditions that existed in 1922 and 1923. The natural resisting power of the people was sufficient to keep them going in 1922 and 1923.

## Information Department

### INFORMATION SUPPLIED

Afridol. M/1512  
Cockle's pills. L/1612  
Litholyst tooth-paste. A/1512  
Luminous paint. B/1612  
Mennen's powder. H/1212  
Nivea for after shaving. H/1512  
Panulin. N/1512  
Phyllosan tablets. S/1612

Quinasp. M/1512  
"Revloc" brand lemonade. J/1512  
Spraying machines for cinemas. S/1612  
Tolysin tablets. D/1512  
Vocalise perfume. T/2211  
Zopla plasters. A/1512

## Observations and Reflections

By Xrayser II.

### The Postulates

adopted by the International Pharmaceutical Federation for the control of specialities must be judged as a whole, and, if so judged, it will be seen that several of them are inadmissible in this country, where the conditions of pharmaceutical service differ radically from those obtaining abroad; and it is inconceivable that they should ever be so changed as to bring us into line with our foreign *confrères*. Let us take one point alone as a test of the likelihood of this ever happening. The Federation suggested that, in rural districts, government subsidies should be granted to enable pharmacies to be carried on if without such help they could not provide the owners with a living income. To foreign pharmacists, so much more completely under government control than we are, and protected from the competition we suffer as dispensers, there is apparently nothing strange in such a suggestion, which, if adopted, would give a government a certain warrant for interfering further than it does already with the business side of pharmacy; but in this country it is manifestly impracticable, and any justification of further control founded upon it falls to the ground with it. This is only one point, but it illustrates the difficulties in the way of

### The Internationalisation of Pharmacy

in the sense desired by the Federation. I wish heartily that conditions here approximated more closely in many respects to those to which most of the members of the Federation are accustomed, and that many, if not all, of the "postulates" they lay down were as applicable here as with them; but our national habits, not to say our national character, are so different from theirs that there is little ground of hope that any scheme for controlling specialities that is feasible with us would satisfy the pharmaceutical *doctrinaire*, or that any that does not will be generally accepted abroad. Nor is it reasonable for foreign pharmacists to expect us, who have not their privileges, to welcome the restrictions they can afford to suffer. Most of us would be glad to see some further control exercised; but it must not be on the lines nor in the spirit of the Dangerous Drugs Acts.

### The Admission

made by Mr. John Hilton, director of statistics at the Ministry of Labour, that the Ministry has no means of measuring how far its index to the cost of living is applicable to middle-class households, since it is based entirely on working-class budgets, shows the injustice of the Government's treatment of its own civil servants, and of us chemists, in the strongest light. The index is not fair even to the working-classes themselves, since it takes account of the wholesale prices of certain selected firms only, and is much less so to those whose rate of living is necessarily dependent in large measure upon the cost of other things than mere food and clothing. We ought never to have agreed to let such an "index" regulate in any degree the terms of Insurance dispensing, and this fact ought to be well impressed upon the Commission of Inquiry now sitting.

### Mr. R. Cecil Owen,

in his interesting address on psycho-analysis, harped much upon the phrase, "the unconscious mind," the impropriety of which, from the philosophical point of view, I have (I believe) pointed out before. The definition of "mind" as expressing mental or physical being or faculty is "the seat of a person's consciousness, thoughts, volitions, or feelings"; or, as an older writer puts it, "that power which both perceives and wills"; or, in Mill's words, "the mysterious something which feels and thinks." In all these definitions, as in many others that might be quoted from recognised authorities, consciousness is implied. We cannot perceive or think of anything of which we are not conscious.

And the definitions are in strict accordance with our habits of thought and speech. What is out of consciousness is out of mind; "mind" originally meant memory, and we still unconsciously use it with reference to that meaning. Of course, this is all a matter of terminology; but it is particularly desirable in metaphysical speculations to use exact terms, and when we have the terms "unconscious self" and "subliminal self" ready to our hand, it is a mistake to use one that is more open to misunderstanding.

### The Growing Practice

of consultants giving their prescriptions to the practitioner who introduces the patient is an abuse to which I called attention two or three years since, giving an instance in which the practitioner, from whose neighbourhood the patient had removed to such a distance that it was no longer possible to obtain the medicine from him except at great inconvenience and considerable expense, after much pressure, consented to supply a copy of the prescription on payment of a guinea, to which the patient (as I hold, weakly) consented. This was a chronic case, and it was for prolonged use that the medicine had been prescribed. I protested strongly at the time, and urged the patient to consult a solicitor before consenting to what seemed to me sheer imposition. The legality of such a proceeding certainly ought to be challenged. The patient does not pay the consultant for advice to the practitioner but to himself, and whatever is prescribed he ought to have the full benefit of without further payment.

### The Authority

for the story of the introduction of *ipeacuanha* into France, upon which both Pereira and the authors of "Pharmacographia" rely, is Sprengel ("Historie de la Médecine," Paris, V), who says that a merchant of Paris, one Grenier or Garnier, became possessed of 150 lb. of the root in 1686, and, having been attended in a serious illness by Dr. Afforty and his pupil, Jean-Claude-Adrien Helvetius, gave them, on his recovery, some of the new drug, assuring them of its great value in dysentery. Afforty thought little of it, but Helvetius made such good use of it as brought him great fame and the sole right of vending the root, which, however, he subsequently parted with, selling the secret to the King for 1,000 louis d'or. Helvetius appears not to have made any research into the nature of the root. This was reserved for Hombert, a chemist, and Bolduc, an apothecary, an account of whose researches was given along with much other information as to the sources, etc., of the drug by Dr. Douglas in the "Philosophical Transactions," No. 410. This article (or several pages of it) is reproduced in Alleyne's Dispensatory (1733), and may still be read with interest.

### The Name "Bezoar"

is from the Persian *pád-zahr*, meaning literally poison-expeller, and it was as an alexipharmic or antidote that the stone was used. It was the most important ingredient in Gascoign's powder, of which Alleyne says: "Its alexipharmic quality can be supposed to arise from nothing in the composition besides the Bezoar; but from many experiments I have found that there is no such virtue in that drug." Quincy, who calls Gascoign's powder "one of the dearest and most worthless medicines in practice," shares this opinion of the stone, but although it had begun to lose its reputation a good while before this, it was retained as an ingredient in the official pulvis bezoardicus until 1788. Two other official preparations to which the name bezoar was given disappeared in 1746, though both of them and some half-dozen more have a place in the Pharmacopœia Bateana, and appear to have been highly thought of. The official ones were bezoardicum minerale, prepared from butter of antimony and spirit of nitre, and bezoardicum Joviale, a distillate of regulus of antimony, tin and mercury sublimate, to which spirit of nitre and s.v.r. were added. It was, says Salmon, "a stupendous Diaphoratick."

Fine products from the celebrated laboratories of  
E. SCHERING

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The sovereign remedy for  
Gout, Rheumatism, etc.

VERAMON  
ICTEROSAN  
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LAEVULOSE  
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Cape Town, Shanghai & Bombay.

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A VITMAR sale on a pharmacist's own  
recommendation means repeat orders.  
It makes a casual buyer a regular  
customer.

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recommends himself—and IT PAYS!*

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## Editorial Articles

### A Comparatively Uneventful Year

THE year 1924 has been comparatively uneventful for pharmacists, and the present review of it is likely to partake of the character of a chronicle of small beer. Pharmacists have been freer than in some previous years from interference by the legislature, and there have been fewer prosecutions for alleged errors in dispensing than they have been accustomed to lately. Such new Regulations as have come into force under the Dangerous Drugs Act have upon the whole been favourable to chemists rather than otherwise; the terms for Insurance dispensing have also been made a trifle easier, and chemists are secure from further revision for three years from April last. All this should make for the quietness and confidence in which strength is usually found to subsist, but it cannot be said on a general survey that the year has been a good one for business, and pharmacists were told at the Bath Conference that the craft is in a state not of stability but of transition. Business has suffered, we should say, considerably from the vagaries of the weather. The torrential rains and persistent cold which made the summer so short and broken were disastrous to seaside places and other pleasure resorts, and could not be good for trade anywhere. Wet summers, too, are usually healthy ones, and although chemists do not now depend for business upon the ailments of the public to the same extent as formerly, the absence of serious epidemics and the general healthiness make a difference to the smaller takings which in the aggregate may be considerable. Apart from this, dull, depressing weather affects the spirits and consequently the rate of living. The exhibition at Wembley, moreover, has probably diverted a good deal of cash from chemists' tills to other channels of circulation. What the cost of transit and admission, the amusements, and the money spent, at very high rates, upon souvenirs and presents at the various stalls, people have had less than usual to spend at home. The general election, again, must be taken into account as a disturbing factor. Be the causes what they may, we hear from many quarters complaints that the promised revival of trade has not yet become apparent to the retail chemist. There is perhaps an

exception in some of the central districts of London, in which the unusual rush of visitors has been of some benefit to him among other tradesmen. Wembley, of course, must be thanked for this. The permanent bearing and effect (if any) of the Exhibition upon the art and science of pharmacy—whether it will prove to have been a stimulus to further progress, or merely a record of what has been already accomplished—we cannot as yet determine. Our own articles upon the subject will have given such of our readers as were not able to visit Wembley a sufficiently good idea of the extent and quality of the exhibits. There is, however, a pretty strong feeling in the country that the reopening of the Exhibition next year, which has been determined upon, will not prove a great success. The Trade Exhibition Organisers' Association has protested against it (apart from the question of its doubtful success), on the double ground that the Exhibition has already served its purpose and that it will be an undue interference with established trade exhibitions catering for every industry. The success of the chemists' exhibitions in Manchester and Leeds may be cited as possibly a sufficient answer to this latter objection. The history of the Pharmaceutical Society during the year is of the same humdrum character as that of the trade itself. The

THE PHAR- Council election excited little interest, as  
MACEUTICAL there was no important question at issue,  
SOCIETY but there was a very close run between the  
only new member elected and the next below  
him, the former, Mr. T. Hardy, of Maryport, receiving  
only fifteen more votes than his unsuccessful rival, Mr.  
F. A. Lawman. The annual meeting of the Society was  
very badly attended; the President's address was, as  
he admitted, mostly "common form"; and the discus-  
sion that followed was for the most part on such  
trivial subjects as the hour of meeting. A little flutter  
was, however, caused by a question whether the Society  
now makes any direct contribution to the Benevolent  
Fund, or has entirely discontinued the old custom of  
making occasional grants to it. What the answer  
amounted to was that all the Society, as such, contri-  
butes is the services of its staff in the administration  
of the fund. Whether the staff receives any extra pay  
for these services was not stated. The annual dinner  
was much better attended than the meeting, and was a  
more interesting affair. At the same time, the price  
charged for tickets (25s.) was commented upon somewhat  
severely. Both at the meeting and at the dinner the  
President, Mr. Neathercoat, was a very popular figure  
and well sustained his character as one of the most  
successful heads the Society has ever had. He has never  
stood higher in the estimation of members than he did  
on these occasions, and the surprise was great when, at  
the next Council meeting, he was, though a candidate  
for re-election, superseded by Mr. Sargeant. At the  
same meeting Mr. Rowsell was elected Vice-President.  
In the annual report the Society was spoken of as in  
a flourishing condition, and, so far as external appear-  
ances go, this is true. Its membership was never so  
high, its organisation is all but complete, and its  
finances are in a sound position, affording, we are  
assured, ample means for carrying on all its work sat-  
isfactorily. This is all very well, but there is perhaps  
a danger of mistaking outward prosperity for a sufficient  
proof of inward vitality. The Society has not, during  
the year, been very fortunate in its efforts for the  
advancement of pharmacy. It has effected nothing for  
the improvement of the position of pharmacists in the  
Army, and it has been distinctly snubbed over the Thera-  
peutic Substances Bill. It has, however, been busy in

the revision of the by-laws dealing with the examina-  
tions. A draft of the changes proposed was issued early  
in the present month, and we may anticipate their  
adoption at an early date. They provide for candidates  
proceeding straight to the Major examination after pass-  
ing Part I of what is now the Qualifying one. We  
may presume that the final examination will be stiffened.  
The British Pharmaceutical Conference is the next event  
that calls for mention. Held at Bath, the Queen of  
the West, and with a most attractive list  
BRITISH PHAR- of excursions in the beautiful country  
MACEUTICAL round that city, it could hardly fail of  
CONFERENCE success, and everything possible was done  
to ensure it; but if a large attendance is

necessary to success, it was not conspicuously successful.  
The Conference was welcomed by the Mayor of Bath  
in a speech of great cordiality and much humour; the  
President of the Society, in his speech at the banquet,  
made an unusual impression by a display of fine oratory;  
and the chairman of the Conference, Mr. E. White,  
dealt suggestively in his opening address with the future  
of pharmacy. He foresaw great changes in the character  
of our materia medica and the relation of pharmacy to  
therapeutics, and his remarks, which could hardly be  
fully appreciated on a first hearing, deserve careful  
study. A report of the address was given in our issue  
for July 26. Mr. White's forecast of the fortunes of  
the Conference itself were not very convincing, in view  
of the fact that this, the first provincial meeting under  
the new *régime*, was—apart from the delegates—but  
poorly attended in comparison with several previous  
ones. The scientific papers were up to the usual mark.  
The opening of the new session of the Society's school  
in October was well attended. It was announced that  
Mr. G. R. A. Short was to be the new Curator of the  
Museum, and that the Senate of the London University  
was considering a resolution (since passed) for establish-  
ing the degree of bachelor of pharmacy. The Presi-  
dent's address was remarkable for its eloquent insistence  
upon the value of a liberal as distinguished from a  
merely technical education. The Retail Pharmacists'  
Union has pursued a steady course of usefulness through-  
out the year, and at its annual meeting  
RETAIL had a total membership of 5,901, which  
PHARMACISTS' may be considered satisfactory. The elec-  
UNION tion to the Executive showed an apathy  
in that respect similar to that of the

Pharmaceutical Society, but there were more changes in  
the *personnel* of the Executive than in that of the  
Council. Some of the Union's activities have, we venture  
to think, been a little overboomed; that is an error  
on the right side, but its efforts at price-protection have  
been neither very well judged nor very successful. In  
this respect the P.A.T.A. bears the palm. The Union's  
new scheme of business instruction is stated to have  
been well received; to be worth the price charged  
for it, it should be of exceptional merit. The negotia-  
tions between the Union at the Ministry of Health  
regarding the terms of service under the Insurance Act  
have (as we have already said) resulted in some little  
pecuniary benefit to us, as well as a slight improvement  
in other conditions. We have the satisfaction of knowing  
that the *C. & D.* series of articles on the subject con-  
tributed to this result. The Regulations issued under  
the Dangerous Drugs Acts have again been  
DANGEROUS a source of much trouble to the trade. A  
DRUGS new Order amending the Regulations affect-  
ACTS ing hospitals was issued by the Home Office  
in August. In October further draft Regu-  
lations were issued amending those in force as regards

raw opium, the diversion of drugs in transit, and the occurrence of "dangerous" drugs in prescriptions; the intention of the last-named was apparently to ease the lot of the dispenser who has to decide whether prescriptions presented to him are genuine or not; but the crucial point, the taking of "reasonable" precautions, is not sensibly affected by them. They came into force on November 20. Part II of the Safeguarding of Industries Act, the object of which was the prevention of the "dumping" of foreign goods, expired in August. Part I continues in force till August 1926. Another matter that has caused some trouble is the addition of pyridine to methylated spirit for the purpose of preventing its use as an intoxicant. It is doubtful whether the object has been attained, and the difficulty of obtaining spirit suitable for bedside use has been considerable. We gave practical suggestions for preparing a surgical spirit from industrial alcohol which have been taken up in various quarters. A word may be said with regard to ourselves. During the year we have continued our quarterly review of the progress of pharmacy, concluded our series of articles on dispensing terms, and added another on the wholesaling of poisons. We have also begun (on July 5) a Commercial Compendium, which, when concluded, will be a complete epitome of information on subjects connected with pharmacy. It will be continued in weekly instalments. We have received a large number of appreciations of this new feature in trade journalism. The Nature pictures of medicinal plants in their native habitats that appeared early in the year were also greatly appreciated. It is permissible to refer to our endeavours to maintain the reputation of the *C. & D.* as a complete journal for the drug trade. The professional and commercial sides have been fully dealt with in exclusive articles. We were, for instance, the first journal in the world to review the first Czechoslovak Pharmacopœia, to summarise the new Argentine Pharmacopœia, and to follow the steps that are being taken to revise the United States Pharmacopœia. The large amount of commercial information we give is exclusive, and, like the Retail Price List, becoming more and more appreciated by those who use them. *C. & D.* "services" are constantly being extended; they are real "services" for which no extra charge is made. One of the newer ones which is much used by our subscribers is the supply of formulas for "known, admitted and approved" remedies. The obituary of the year has been unusually heavy, but our space

OBITUARY will only allow of a brief and partial record.

The most serious loss by death to the Pharmaceutical Society was that of Mr. A. S. Campkin, Cambridge, who occupied an almost unique position in the Council as a man of independent views and exceptional sagacity. The death of Mr. Leopold Joseph, Cardiff, in the autumn was a loss to the R.P.U. Other names that must be mentioned are those of Mr. T. F. Abraham, Liverpool; Mr. Beach, Bridport; Mr. Blamey, Hove; Mr. Breeze, Plymouth; Mr. Alexander, Banff; Mr. Birkett, Morecambe; Mr. O. A. Clark, Gorleston; Mr. C. Clayton, Oxford; Mr. Corfield, Edgbaston; Mr. R. Glode Guyer, Edinburgh; Mr. J. C. Hewlett, F.C.S., London; Mr. L. Ough, Liskeard; Mr. H. H. Pollard, Ryde; Mr. W. Reid, Aberdeen; Mr. G. Squire, Sheffield; and Mr. Charles Thompson, Birmingham. All these were, in one way or other, of eminence in British pharmacy, and we have by no means exhausted the list. We must also note the loss of Mr. Piper, Melbourne, editor of "The Chemist and Druggist of Australasia"; Mr. F. C. Mathew, formerly President of the Pharmaceutical Society of the Cape Province; and Mr. Cooper, Durban, South Africa.

## Drug Index

Summary 1917-1924 inclusive

Drugs (1913=100)

	1917	1918	1919	1920	1921	1922	1923	1924
Jan.	198.8	207.6	232.9	315.2	239.0	182.0	152.2	164.0
Feb.	191.1	212.5	230.6	324.3	226.0	178.0	153.7	160.3
Mar.	185.0	215.2	216.2	336.4	215.8	171.3	153.6	160.7
April	183.5	216.5	207.0	345.8	212.8	170.4	155.1	159.3
May	188.1	224.6	196.0	344.6	209.7	169.8	157.3	158.7
June	191.3	221.8	200.9	362.7	207.5	161.2	156.9	156.2
July	193.9	217.0	202.3	341.4	200.4	158.9	157.2	158.7
Aug.	198.7	217.8	205.2	322.5	193.2	158.2	156.5	156.2
Sept.	201.7	219.7	213.9	334.6	188.1	155.4	157.2	154.7
Oct.	202.5	227.5	216.2	289.6	186.8	154.7	156.6	152.3
Nov.	203.0	242.4	216.4	268.2	188.9	153.4	160.8	154.4
Dec.	204.6	236.5	218.0	258.2	188.2	153.3	161.9	152.7

DRESSINGS (1913=100)

	1917	1918	1919	1920	1921	1922	1923	1924
Jan.	202.0	390.5	478.4	390.2	268.8	214.6	205.4	239.6
Feb.	203.0	438.1	390.0	357.6	250.6	214.6	205.4	243.0
Mar.	205.0	438.1	276.2	405.8	250.6	209.0	219.0	250.3
April	204.5	483.1	286.8	400.4	256.6	203.4	225.4	250.3
May	274.0	483.1	268.8	402.4	256.8	201.2	225.4	250.3
June	240.0	483.1	268.8	408.2	256.2	197.4	225.4	250.3
July	264.8	483.1	231.3	445.2	244.4	197.4	225.4	250.3
Aug.	273.5	495.0	253.3	445.2	230.6	197.4	225.4	250.3
Sept.	291.3	501.7	270.1	406.6	230.6	204.0	225.4	258.4
Oct.	291.3	511.2	292.9	374.2	230.6	204.0	225.4	258.4
Nov.	316.5	513.3	308.7	365.2	230.6	204.0	225.4	258.4
Dec.	316.5	513.3	333.7	320.6	230.6	204.0	225.4	258.4

## Recent Patents

Abstracts of specifications of recently-granted patents for inventions. The complete specification (i.e. each including postage) of British patents can be obtained from the Patent Office, 25 Southampton Buildings, London, W.C.2, on quoting the name of the patentee and the number of the patent.

**Prevention of Braxy.**—A tonic preparation for the prevention of braxy in sheep, consisting of a mixture of raw linseed oil, Epsom salt, and turpentine. (M. MacPhee. 225,157.)

**Pipette.**—A pipette provided with a valve or tap above the fiducial mark near the mouthpiece, to regulate the amount of air in the pipette, and to control the entry and exit of liquid. (A. Conick. 225,084.)

**Rice Starch.**—A process for the manufacture of rice starch, consisting in grinding a mixture of rice and water, followed by separation of the product into three portions by centrifugal treatment. (E. Schlüter. 225,101.)

**Refining Oils.**—The oil is first subjected to the action of acid treated bleaching earth ("Tonsil A.C.") and after filtration, steam is passed through the heated oil to eliminate the free fatty acids and volatile odoriferous substances. (Lever Brothers, Ltd. 224,928.)

**Captive Cap.**—A collapsible tube provided with a slotted neck and a corresponding slotted cap, the aperture in the latter being so adapted as to register on rotation with the aperture in the neck of the tube. (T. F. Farrimond and J. H. Hoseason. 225,057.)

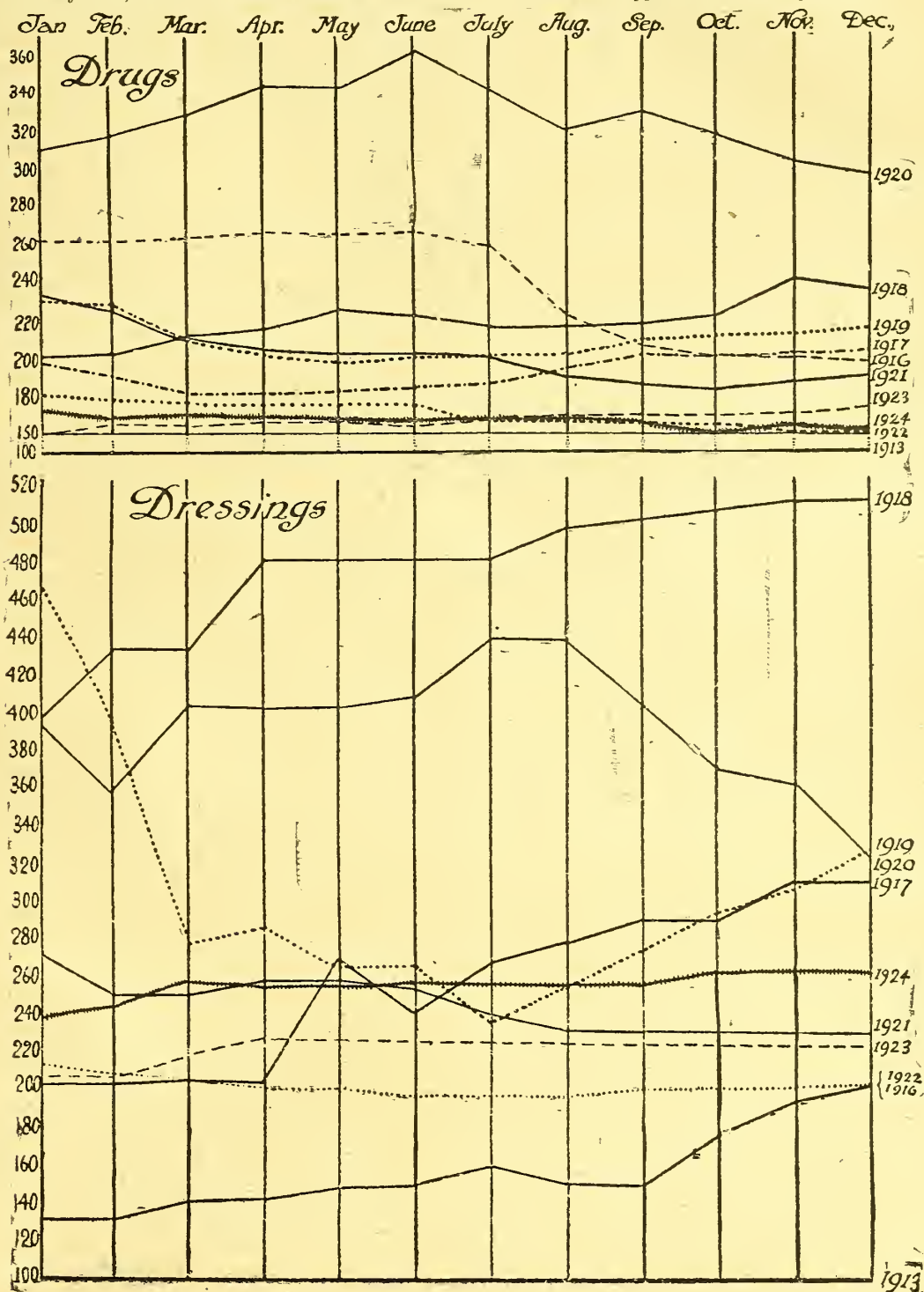
**Aromatic Arsenical Compound.**—A process for the manufacture of a spirocheticide, consisting in treating 3 . oxy . 4 . aminobenzol . 1 . arsenic acid in sodium acetate solution with phosgene, and recrystallising the precipitate. (Leopold Cassella & Co., G.m.b.H. 214,628.)

**Arsenical Compound.**—A process for the manufacture of hydroxylated aliphatic arsenic acids by causing an alkali arsenite to react with an aliphatic body, e.g., propanol oxide, or ethylene oxide carboxylic acid, with arsenious acid and caustic soda; the resulting compounds being salts of acids corresponding to the formulas  $(CH_3 \cdot CH \cdot CH_2) (OH)_2 (AsO_3H_2)$  and  $(CH_3 \cdot CH \cdot COOH) (OH) (AsO_3H_2)$ . Etablissements Poulenc Frères. 206,152.)

## Review of the Drug Index

THE end of 1923 showed a tendency to rise in the index, which was maintained during January 1924, when it once more began to fall by small amounts until the month of June was reached. A slight reaction set in for July, but the figure was not maintained; the subsequent months show a progressive fall, save for a slight reaction in November, and the year, which started at 164.0, finished at 152.7. This is 0.6 below the figure reached in December 1922; the lowest touched, however, was in January 1923, when the index fell to 152.3. The

trend of prices has been uniformly steady, the variations being largely caused by outstanding instances of marked change; thus, the index for bismuth carbonate in January was 192, and in December it is 104. This alone appears to account for the big drop, but there are things offset against it. Potassium bromide in January was 72, and in December stands at 136, which is the first serious approach to what might be called normal figures on present-day values. In surgical dressings the tendency is upwards. They started at 239.6 and finished at 258.4, which on total values of stocks for the year would show an appreciation of 1.5 per cent.



## Pharmaceutical Society of Great Britain

### Evening Meeting in Edinburgh

THE second evening meeting of the session was held at 36 York Place, Edinburgh, on December 17, Mr. Anthony McMillan (Chairman of the North British Executive) presiding.

The following communication was read:—

#### Melting Point of Codeine Hydrochloride

By Donald C. Wilson, B.Sc., A.I.C.

##### [ABSTRACT]

After referring to a paper read last April (*C. & D.*, April 2, p. 560) the author pointed out that the only melting point he could find for codeine hydrochloride was that of the B.P. Codex, 153°-155° C. The melting-point of the salt used in his solubility experiments did not nearly correspond to that given in the Codex. Careful determinations which were accordingly made using specimens of pure, crystalline codeine hydrochloride showed that the salt has two molecules of water of crystallisation. On heating the salt considerable softening occurred at 132° C., and this continued to 145°-150° C., when the substance seemed to harden again with slight diminution in bulk. Further heating had no effect until the temperature reached the region of 260° C., when slight discoloration was noticeable. This discoloration continued until the temperature reached 287° C., when the substance melted to a brown liquid. As the result of several careful determinations it may be therefore taken that the melting point of codeine hydrochloride is 287° C. (decomposition follows). The author thanked T. & H. Smith, Ltd., for permission to publish this note.

##### DISCUSSION

Mr. DOTT said where there was incipient decomposition it was not easy to give an accurate figure, but an approximate figure was undoubtedly a very valuable point to have settled. This was an instance, however, which suggested that in the case of an alkaloidal salt it was perhaps better to have the definite melting point of the alkaloid.

Mr. RUTHERFORD HILL said it was well worth having a point like this definitely determined, particularly when a wrong figure had got into standard books. These figures were copied from one book to another, and the error might be continued for many years.

The next communication was:—

#### Melting Point of Cotarnine Hydrochloride

By D. B. Dott, Ph.C., F.I.C., F.R.S.E.

##### [ABSTRACT]

This matter came up on an inquiry as to a statement in Martindale's "Extra Pharmacopœia" which under "Cotarnine Hydrochloride" quotes from a note by the author in 1907 giving 125° C. as the melting point of cotarnine. The reference is so stated as to have been understood to be the melting point of cotarnine hydrochloride, which is obviously an error. There are considerable discrepancies in published statements as to melting point both of the base and hydrochloride. These are partly to be accounted for by the different degrees of hydration, probably of the alkaloid, and certainly of the hydrochloride. One rather suspects that there are two isomeric compounds, with appreciably different properties. A good light-coloured salt, dried in the water-bath for three hours, melted at 192° C. (corr.) with distinct decomposition. That result was obtained by gradually raising the temperature from 17° C. It is well known that a distinctly different result might be obtained by starting at 180° C. It is proposed further to investigate the whole matter both as to the alkaloid and the hydrochloride.

The next communication was:—

#### The Assay of Acetum Opii

By D. B. Dott, Ph.C., F.I.C., F.R.S.E.

##### [ABSTRACT]

Acetum Opii (N.F.), formerly official in the U.S.P., is made by maceration and percolation from opium powder 10, nutmeg 3, sugar 20, dilute acetic acid to 100 fluid parts. Considering the amount of acid and the large proportion of sugar, the ordinary lime method did not seem suitable. Of several modifications which were tried the author states that acetum opii, or any similar preparation, must be treated by some such method as given below, the morphine precipitate being well washed with the morphinated water, and when dried, dissolved out with strong spirit before titrating. In a recent communication on international pharmaceutical standards, sugar of milk was advocated as the proper diluent of extract of opium. It is doubtful whether it is the best substance for the purpose from any point of view; from the analytical standpoint it certainly is not. The following is the method:—

40 c.c. were mixed with the calculated quantity of lime nearly to neutralise the acid present, evaporated to a syrup and extracted with successive portions of spirit. The alcoholic solution was then evaporated to near dryness, and made up to 41 c.c. with lime and water. The precipitate was carefully scraped from the filter, dissolved in boiling spirit, the solution filtered through the same filter, and the latter washed with hot spirit. The percentage of morphine indicated by titration was 0.85 w/v, which was probably nearly correct, as the opium is not completely exhausted by the process of preparation.

##### DISCUSSION

The CHAIRMAN said the note on acetum opii interested him because it recalled a preparation which, under the name of black drop, used to be in fairly common demand. He had not heard of it for a long time.

Mr. WILSON said the preparation might be standardised by the usual assay process provided a stronger acetum was prepared and the morphine content determined before the addition of the sugar.

Mr. RUTHERFORD HILL said with regard to the determination of the melting point of cotarnine hydrochloride, he noticed that Mr. Dott in his paper in 1907 indicated that when cotarnine is heated on the water-bath it loses about a molecule of water and then melts at 100° C. One might wonder whether this had any connection with the statement by chemists that the hydrochloride of cotarnine was the salt of a base containing a molecule of water less than the free alkaloid. Would this change lead to a still greater discrepancy between the melting point of the alkaloid and the melting point of the salt? With regard to acetum opii, Mr. Dott's indication that the error due to the presence of ordinary sugar applied also in the case of milk sugar was important. Liquid extract of opium was directed by the B.P. to be prepared from the solid extract, and if the solid extract was standardised by the addition of milk sugar the application of the official assay process to the liquid extract would give a wrong morphine content.

Mr. DOTT said that though the phrase "losing a molecule of water" was used, it was really water of constitution, not water of hydration that was present. There was always some dubiety where there was obvious decomposition of the salt. Decomposition was quite evident even by the smell, and was easily apparent at from 120°-130° C. With regard to acetum opii, what Mr. Wilson said about a standardised preparation prior to the addition of the sugar would be quite practicable and give a finished article of the proper standard. The difficulty was, however, that it was necessary to assay the finished article because disputes sometimes arose as to whether the finished article conformed to the agreed-upon standard. It was at this stage that the presence of sugar interfered and created a difficulty. Probably this preparation is now used more in Ireland than in this country.

(To be continued)

## Udder Diseases of Cows

THE prevention and treatment of the diseases which bring about diseased or non-producing udders in dairy cows forms the subject of a bulletin recently issued by the United States Department of Agriculture ("Farmers' Bulletin," No. 1,422), according to which the most important complaint is that known as mammitis, mastitis, garget, or inflammation of the udder, and the general symptoms are depression and discomfiture. There is sometimes chill, but rough coat, dull eyes, loss of appetite, suspended rumination, and possibly constipation, are conspicuous signs. The animal stands in a straddling position and moves about or lies down with reluctance, owing to the soreness of the udder, which will usually be hot, hard and tender. The milk may be lumpy, caused by coagulation of the casein, and secretion partly or entirely suspended. Chill may be treated by administration of large quantities of warm drinking water, or of cordial drenches, or the use of hot blankets. To reduce fever, give *spt. æther nit.* 3j. three times daily. A full dose of *magnes. sulph.* (1 lb. to 2 lb.) may be administered at the onset of the disease, to be followed by daily doses of *potass. nit.* 3j. and *sodii bisulph.* 3ij., in a quart of water, as a drench. The udder should be completely emptied every two hours; also, twice daily, after milking, it should be bathed for twenty minutes with water as hot as the hand can bear, and at the same time be massaged in a downward direction. All material brought down by this means should be thoroughly stripped out, after which the udder should be dried and anointed with warm camphorated oil or one of the following ointments:—

I	II
<i>Ext. bellad.</i> ... 3j.	<i>Petrolatum</i> ... 2 lb.
<i>Ext. phytolac.</i> ... 3j.	<i>Spirit of camphor</i> ... 2 oz.
<i>Adipis vel adip. lanæ</i> 3viij.	<i>Spirit of turpentine</i> 2 oz.
	<i>Oil of peppermint</i> ... ½ oz.
	<i>Carbolic acid</i> ... ½ oz.
	<i>Powdered extract of</i>
	<i>belladonna leaves</i> ... 6 oz.

The udder should then be supported by a suspensory bandage with holes cut for the teats. Daily irrigation with a 1 per cent. solution of sodium chloride, or a 4 per cent. solution of *sodii bibor.*, or *ac. boric.*, is useful. In infectious mammitis, beneficial results have been reported from *sodii salicyl.* 3ss., *ac. boric.* 3ij., *aq. Oij.*, as a drench morning and night, and from formalin 3ss.-3j. in a quart of milk or oil at noon for several days. An antiseptic solution should be applied to the udder and adjacent parts, and also to the hands of milkers. Hardening of the udder is due to structural changes, and treatment consists mainly in prolonged hot bathing twice daily after milking. After drying the udder thoroughly, an ointment composed of lanolin or lard with 2 per cent. of iodine may be applied. A rich diet or one likely to stimulate milk secretion should be avoided, and a laxative condition of the bowels maintained by an occasional dose (about 1 lb.) of *magnes. sulph.* In event of an abscess being formed, this should be hastened to a head by hot fomentations or poultices, opened and drained, following which the part may be dressed twice daily with an aqueous solution containing 5 per cent. each of glycerin and phenol. Gangrene is caused by a serious interference with the blood circulation, and the raw surfaces should be thoroughly and frequently sponged with a good antiseptic, such as ½ per cent. solution of zinc chloride. Amputation should only be undertaken by a veterinary surgeon. There is no known cure for tuberculosis of the udder. The tuberculin test will demonstrate the presence of the disease in the animal. Actinomycosis of the udder is not so common as tuberculosis, and definite diagnosis requires bacteriological examination. Cowpox is a contagious disease, the lesions first appearing as small red nodules, which later resemble blisters. The disease is usually spread by the hands of the milker, and breaks out about seven days after exposure. The milk should be

discarded and the animal isolated. Twice daily the affected area should be bathed with a 3 per cent. solution of sodium hyposulphite, and once every day or two the pustules may be touched with *tr. iodi* or a 5 per cent. solution of *argent. nit.*

### CHAPPED TEATS AND WARTS

Chapped teats are caused by any irritation, such as sudden chilling after the sucking of the calf, "wet milking" by the attendant, exposure of tender skin to extremes of heat and cold, damp or filthy conditions in the stable. Favourable conditions, such as dry quarters and cleanliness, should be assured, and an antiseptic wash used, after which the chapped surface should be painted once daily with *tr. benz. co.* or a mixture of *tr. iodi* one part and glycerin four parts. It is advisable to anoint the teats with petrolatum before milking. Warts on the teats or udder may lead to abrasions. Long warts can be removed by tying a silk thread tightly about the base of the growth, and eventually it will slough off. Glacial acetic acid or other caustic may be used, but careful application is required. A safer treatment is to paint the warts with collodion containing 15 per cent. of salicylic acid. The film is removed every three days and the growth recoated until it finally sloughs off. Application of *ol. ricini* at two-day intervals is also effective. Stricture or hard milking is due to an obstruction. The condition may be corrected by the insertion of a dilator an hour or two before milking, but the instrument must be previously sterilised and the teat thoroughly cleansed. After milking, the teat should be massaged with petrolatum into which has been incorporated 10 per cent. of *ext. bellad. liq.* If this treatment fails, it may become expedient to resort to surgical measures. In cases of blind or imperforate teats, treatment is obviously surgical, but healing may be promoted by the application of an ointment of balsam of tolu or glycer. bellad.

### STINGS AND WOUNDS

Owing to it being less protected than other parts of the body, and on account of its pendulous position, the udder is often attacked by insects. The injured area should be bathed with a 4 per cent. solution of ammonia or a solution of *potas. permang.* Internal stimulants may be administered in the form of *ext. nucis vom. liq.* In the case of snake bites the wound should be cleansed with solution of ammonia or *potas. permang.*, and painted with *tr. iodi*. The effect of the toxin on the system should be combated with internal administration of alcohol, coffee, digitalis, strychnine, or *sal volatile*. Wounds caused by barbed wire and similar agents should be cleansed and painted with *tr. iodi*. In case of pus formation, care should be taken to prevent the discharge reaching the teat orifices. Bloody milk may be due to mammitis, injury, hardening or tubercular infection of the udder. Treatment consists in determining, if possible, the cause and applying one of the previously mentioned remedies. In mild cases the following may afford relief: Milk out the udder four times a day, bathe it with cold water, dry and apply camphorated oil with gentle massage. Avoid giving a rich diet and administer a dose of *magnes. sulph.* (about 1 lb.) occasionally and 3ss. *potas. nit.* daily. Should the hemorrhage persist inject a sterile 2 per cent. solution of *ac. tannic.* Redness of milk is sometimes due to colour-producing organisms. Ropy, stringy, or slimy milk may be due to irritant forage or of bacterial origin. The affected animals should be stall-fed, and each should receive a daily drench of *magnes. sulph.* 3ij., *sodii bisulph.* 3ij., *aq. Oij.* Stones may be formed by coagulated casein or by accumulations of lime salts from the milk. After prolonged gentle massage of the teat extremity with an ointment containing 10 per cent. of *ext. bellad. liq.* (*fol.*) the concretions, if small, may be passed with the aid of a dilator. The injection of some *ol. olivæ* may assist the removal. If the stones cannot be passed in this way surgical aid is necessary.

## Trade Report

The prices given in this section are those obtained by importers or manufacturers for bulk quantities or original packages. To these prices various charges have to be added, whereby values are in many instances greatly augmented before wholesale dealers receive the goods into stock, after which much expense may be incurred in garbling, packing, etc. Qualities of chemicals, drugs, essential and fixed oils, and many other commodities vary greatly, and higher prices than those here quoted are charged for selected qualities of natural products even in bulk quantities.

42 Cannon Street, E.C.4, December 23.

### London Markets

As is usual at this period of the year business is confined to urgent wants only, and prices generally are well maintained. After the close of our last report business was done in *Menthol* down to 54s. per lb. on the spot for Kobayashi-Suzuki, but the position is now firmer, as it would be difficult to buy at 54s., sellers on Monday asking 55s. per lb. To arrive, January-March shipment has been sold at 44s. per lb. c.i.f. and sellers. In Japanese dementholised *Mint oil* a fair business was done towards the end of last week in December-January shipment at 15s. per lb. c.i.f., and January-March at up to 14s. 9d. c.i.f., sellers on Monday asking 15s. c.i.f. The market is fluctuating and the price varies considerably from day to day. On Monday 22s. per lb. was quoted on the spot. The Norwegian *Cod-liver oil* market closes the year with a slightly easier tendency, the official price of finest non-freezing steam-refined quality being from 117s. to 120s. per barrel c.i.f. London. During the year now closing there has been a much larger volume of business done than usual, this country as well as the United States having taken considerably larger quantities, and, generally speaking, the world's demand has increased. This is no doubt due to the reasonable prices and the high vitamin contents of the oil. *Castor oil*, as announced last week, Hull make was reduced £1 per ton to £75 per ton, firsts to £70, and seconds to £64 (the latter being £5 per ton lower) per ton net barrels included ex mills Hull. Zanzibar *Cloves* are steady, spot offering at from 1s. to 1s. 1d. per lb. as to quality. To arrive, October-December shipment is quoted at 11½d. c.i.f., and January-March shipment has been sold at 11d. per lb. c.i.f. *Pimento* is steady at 4½d. per lb. on the spot, and to arrive sales have been made at 31s. 6d. per cwt. c.i.f. Hamburg. *Pepper* is steady, fair white Singapore offering at 5½d. per lb. on the spot; to arrive, November-January and January-March shipment is 5½d. per lb. c.i.f. London. White Muntok is steady at 10½d. per lb. on the spot, and to arrive, the sales include f.a.q. for January-March shipment at 10½d. to 10¾d. per lb. c.i.f., and March-May at 10¾d. to 11d. c.i.f. London. The tendency of *Shellac* has been on the dull side and with rather easier Calcutta advices and continued very large arrivals holders on the spot have been more disposed to make concessions, while forward quotations in the terminal market have eased further. Usual T.N. orange standard quality closed on Monday at 31s. per cwt. spot. *Ergot* remains firm on the spot at 2s. 6d. per lb. for Spanish or Portuguese. H.G.H. *Peppermint oil* is very scarce on the spot, and the price asked is 52s. 6d. per lb. *Rubber* has substantially improved since our last report and has advanced ¾d. per lb. This increase in price has been gradual, and judging from the nervous feeling that is predominant, a further sharp advance may shortly be expected. To buy spot at the moment is exceedingly difficult, and the importers who would willingly have sold all their stocks of standard rubber at 1s. 6d. a short time ago are willing to sell only the smallest quantities at 1s. 7½d. The pressure and tightness on the spot is greater than for many years past, and a further rapid increase in values may be expected to take place in the course of the next few weeks. Stocks are again lower by 1,665 tons on the week. Quotations (Monday, 5 p.m.):—No. 1 standard crêpe and ribbed smoked sheet, spot and December, 1s. 7½d.; January-March, 1s. 7½d.; April-June, 1s. 7½d. per lb.

In chemicals the *Arsenic* market seems firming up to

some extent, but there has been little doing. Advices have been received from America that there is a prospect of an improvement in the demand there in the coming year, although this will depend a good deal on the weather conditions over the winter period. A good deal of stock has, however, yet to be absorbed there. Cornish mines are asking about £33 to £34 f.o.r. The export demand for *Copper sulphate* has been rather slow lately, but terms are fully maintained, the much higher cost of the metal being taken into consideration by manufacturers. Current terms vary from about £24 15s. to £25 5s. a ton f.o.b. for casks, less 5 per cent.. There is a fair inquiry for *Sulphur*, with a steady tone. American or Sicilian crude is quoted £5 10s. per ton delivered Manchester. Refined ex warehouse London ranges from £9 12s. 6d. to £9 15s. per ton for flowers, and the price quoted for roll is £7 15s. There has been a steady demand for foreign regulus *Antimony*, but offers are scarce and the tone is firm. Chinese for shipment is held for about £53 to £53 10s. c.i.f., while spot lots are called £60. English regulus stands at £59 10s. to £60 a ton. White oxide of antimony ranges upward of £63 per ton delivered. Owing to the dearthness of lead, home manufacturers last week raised their prices materially for *Lead oxides* and white lead, and there has been more demand of late. Red lead and litharge now stand at £53 per ton for the home trade and export f.o.b. The export price of white lead in oil is £54, and that of dry white lead £53 15s. a ton f.o.b. A moderately active demand is reported by importers of *Cadmium* metal, and current supplies are fairly well absorbed on the basis of 2s. 4d. to 2s. 5d. per lb. Despite the recent reduction understood to have been made by the Spanish mines of 10s. per bottle to £11 in *Mercury*, the tendency has again been towards improvement, while a fair amount of buying has been done lately. Quotations early this week were upward of £12 10s., with some dealers quoting up to £12 15s. per bottle. Offers have remained restricted, while the fact that stocks were considerably reduced has made itself felt. It was reported in a Spanish paper that under the auspices of a Spanish banking group a new concern had been formed, named the Sociedad del Mercurio, the object of which is to render the Spanish industry more independent of foreign influences, but at the same time to bring about an understanding with other European producers. In sympathy with stronger American advices, prices of *Turpentine* hardened considerably late last week, but later reacted slightly under a restricted demand. Last week's London deliveries amounted to 1,686 barrels, making an aggregate since January 1 of 100,183 barrels, which compares with 91,588 barrels for the same period in 1923. The warehouse stocks were 39,557 barrels, against 30,320 barrels at the same date last year. Spot delivery is more firmly held, but market closed quiet on Monday at 61s. per cwt., and January-April 62s. *Linseed oil* is steady, closing at 48s. 6d. spot, and December 47s. 6d., January-April 48s., May-August 48s. 4½d., Hull is 47s. 9d. spot and December.

Among the arrivals of chemicals, drugs, etc., in London since our last report, are the following:—*Drugs*: Cantharides (about 150 cases); cardamoms, 146; chamomiles, 10; liquorice root, 89 bales; menthol, 15 cases; mint oil (Jp.), 95 cases; orris, 14 bags; podophyllum (N.Y.), 70 packages; sarsaparilla, 26 bales; senega, 18 bales; senna, 50 bales; tuba root (to Liverpool), 85 bales; wax, bees' (via Lisbon), 133 lb. bales. *Chemicals*: Arsenic (Jp), 400 cwt. and 200 packages; borax (N.S.), 1,500 cwt.; formaldehyde (German), 25 packages; hydrogen peroxide, £158; iodine, £16,378; potash chlorate (Sweden), 140 packages; soda hypo (France), 500 cwt. The following are among the imports of chemicals which have paid key industry duty: Butyl alcohol, £1,116; coumarin, £252; ethyl acetoacetate, £589; thymol, £714; undescribed chemicals, £1,332.

### Essential Oils during 1924

THE total volume of business in essential oils during 1924, as will be seen from the eleven months' figures published in last week's *C. & D.* (p. 900), is considerably

in excess of that of the previous two years. The general demand was particularly good in the early months of the year, and at the close the majority of oils are strong markets with the outlook, for the early part of the year at least, favourable to sellers. Some of the most interesting movements in the market are briefly indicated below:—

*Star anise oil* opened at 1s. 9d. per lb., and 1s. 8d. was quoted to arrive. In February the demand increased as a result of reports indicating shortage at Hongkong, due to the Chinese "War," and values quickly improved early in March, when 2s. was first reached this year. The highest price quoted during the year was 2s. 9d., and the present figure is 2s. 7½d. *Cassia oil* was a declining market in January, being quoted at 9s. 6d. per lb. on the spot and 5s. 7½d. c.i.f. The forward price actually declined to 5s. for a short period, but quotations advanced to 5s. 6d., at which several sales were made. The spot price remained around 8s. to 8s. 6d. during the year, the lower figure being the value at the close. *American cedarwood oil* offered at 1s. 4½d. per lb. in January, and owing to short supplies the price has reached the high level of 3s. 9d. to 4s. per lb. Ceylon and Java *Citronella oils* have been in good demand this year. Ceylon oil on the spot has declined from 3s. 11½d. per lb. in January to 3s. 1½d., which is now quoted. Java oil, however, has advanced from 4s. 6d. to 6s. 3d. *French lavender oil* was firm at 25s. per lb. in January, and with the carry over stocks disposed of and a disappointing crop the market closes firm at about 32s. per lb. for 38 to 40 per cent. oil. Higher prices are expected next year. *Cochin lemongrass oil*, which was a neglected article for some time, improved towards the end of the year to 4s. 9d. per lb., the opening figure being 3s. 4d. *Japanese dementholised mint oil* (*Kobayashi-Suzuki*) opened firm at 12s. per lb. spot and 9s. 7½d. to 9s. 9d. c.i.f. By April it had reached 18s. 6d. on the spot and 18s. 3d. c.i.f. The price declined to 13s. 6d. spot and 13s. c.i.f. in August. Aided by the scarcity and cost of American peppermint oil, and by an unprecedented shortage on spot, the value of the Japanese product advanced to 24s. At the close the nominal quotation is 22s. 6d. *American natural peppermint oil* has perhaps been the most spectacular market in essential oils. The price opened at 15s. 6d. per lb. on the spot, and reports of a shortage of stocks in the United States caused a steady advance. The crop being extremely disappointing, the highest price since 1920, when 47s. 6d. was quoted, has been reached, spot being nominal at from 40s. to 42s. 6d. *Lime oil, West Indian*, has been scarce and firm throughout the year. Distilled was offered at 4s. 3d. to 4s. 6d. per lb. in January, and is now difficult to find at 6s. 6d. Hand-pressed, opening at 6s. 6d. on the spot, is now 10s. 6d. to 11s.

#### Exchange Rates on London

The following is a list of Continental and other exchange rates against the pound sterling on London prevailing at 4 p.m. on Monday:—

Place	Method of Quoting	Par of Exchange	December 17	December 22
Amsterdam	Fl. to £	12.107	11.62½—11.63½	11.65—11.65½
Berlin	M. to £	20.43	19.70—19.72	19.77—19.80
Brussels	Fr. to £	25.22½	95.05—95.15	94.60—94.65
Calcutta	Per rup.	24d.	18½d.—18½d.	18½d.—18½d.
Christiania	Kr. to £	18.159	30.99—31.02	31.25—31.30
Constantnple	Pst. to £	110	855—870	870—880
Greece	Dr. to £	25.22½	258—260	258½—260
Italy	Lire to £	25.22½	108.85—108.90	109.44—109.50
Kobe	Yen	24.58d.	19½d.—19½d.	19½d.—19½d.
Lisbon	Escu.	53½d.	2½d.—2½d.	2½d.—2½d.
Madrid	Pts. to £	25.22½	33.53—33.58	33.75—33.77
Montreal	\$ to £	4.86½	4.71—4.71½	4.72½—4.72½
New York	\$ to £	4.86½	4.69—4.69½	4.70—4.71
Paris	Fr. to £	25.22½	87.55—87.60	87.40—87.45
Singapore	Per dol.	—	28½d.—28½d.	28½d.—28½d.
Switzerland	Fr. to £	25.22½	24.21—24.24	24.28—24.30
Vienna	Kr. to £	24.02	332.000—334.000	330.000—335.000
Warsaw	Zloty to £	25.22½	24.35—24.45	24.40—24.60

#### The Chemical Markets during 1924

A STUDY of the tables giving comparative prices of the leading industrial and pharmaceutical chemicals, coal-tar products, etc., shows that the general trend of spot values continues in buyers' favour. But the movement, which commenced in 1920, has been limited to much narrower margins, and in many chemicals the fall has not been continual. The general deduction seems to be that 1924 has been one more step towards a basis of steady markets and something like normal conditions. Some of the more violent fluctuations in the market were caused entirely through drastic alterations in the German Reparation Levy, and in the later months of the year firmer conditions on the Continent, owing to higher costs of production, was, as usual, immediately reflected here.

#### A BRIGHTER OUTLOOK

During the last four years the causes of sharp and considerable movements in prices have gradually diminished. International currency values, industrial strikes, and reparations questions have worked towards a solution, with the result that buying and selling to-day is not nearly so hazardous as it was even a year ago. The volume of trade seems to have been generally better, but the markets have suffered from long periods of slackness. The year opened with prices moving upwards, on account of British importers having to pay the 26 per cent. Reparation levy while Germany was refusing to meet their obligations in this respect. In effect it meant that imported chemicals from that source cost, not 26 per cent., but 35 per cent. more. As usual, the increase was passed on to the buyer. On a rising market business continued good until the end of February. From that time up to about September matters were distinctly quiet, and competition exceedingly keen. During this period prices steadily but very gradually fell away, and the general tone was far from bright. During September notifications of firmer conditions on the Continent, especially in Germany, were being received, and this movement widened and has continued almost up to the end of the year, which closes with perhaps the brightest outlook for the future since the armistice. The tone is altogether better, business is coming along with more confidence, and many of the causes for sudden rises and falls in values have ceased to exist.

As regards home manufactures the general report may be summed up by stating they have not done so well as they had hoped to do, but it has been the best year since the war, and they have not lost ground. Re-organisations have been common, and it may be assumed that the home producers who have survived the past four lean years will begin to make up some of the lost ground as conditions improve. Under the Safeguarding of Industries Act a system of importing chemicals in bond has been introduced, but it has come too late to bring about the revival of the re-export trade, which was of considerable dimensions in the days of unrestricted shipments. The trade has been partially driven to the Continent, and will be slow to return to its original volume now that foreign buyers have discovered the direct sources of supply.

#### PHARMACEUTICAL CHEMICALS

The general movement in prices in this section has been to lower values, but in isolated instances, such as bromides, spot prices have appreciated. The trend of values has not been persistently to lower levels. During January and February the market hardened, and then some months of slow trade and gradually weakening markets followed. In September conditions became rather stronger and business more in evidence. During the closing months the demand has been better than at any other period of the year, the general tone being decidedly steadier. Aspirin, after falling from 3s. 9d. to 3s. 2d. per lb. in the second and third quarter of the year, has been a steady item, round about 3s. 1d. in quantity. Bromides up to the end of August had been of little interest to buyers, and any alteration in prices had been in their favour, with the position unsteady. During September and November the market, up to then

one of the slackest and weakest, became very active at sharply advancing prices. For instance, the f.o.b. Hamburg price for sodium bromide on September 3 was 2s. per kilo; on October 3, 2s. 4d. to 2s. 6d.; on November 3, 3s. 1d.; and November 6, 3s. 11d. per kilo. That was about the peak of the market, but conditions have held firm, although prices are a little cheaper. It is difficult to see how these prices for bromides can hold much longer. Hexamine, phenacetin and phenazone have been steady items, but latterly competition has been severe and price-cutting to secure business has been much in evidence. Hydroquinone went to higher prices in July and August, and, with business good, conditions held during the remainder of the season. Salicylates have moved up and down in prices, with the balance well in the buyer's favour, due to the low price of carbolic acid. The tone of these items at the close of the year is steady to firm, with some indications of firmer conditions on the Continent. Benzoic acid has been a troublesome article—prices have never been really steady and there has been a lot of doubtful B.P. quality on the market. Acetanilide was of little interest for a long time and prices fell right away. Commencing the year at 3s. 9d. spot, they went down to about 1s. 10d., but during December hardened to 2s. 4d., and then moved back to 1s. 11d. to 2s. per lb. In calcium lactate a good deal of the business has gone to British producers, who have been making an excellent product at cheaper prices. Chloral hydrate has had a good year, with prices always on the firm side and the demand quite satisfactory. Opening at about 4s. 1d. to 4s. 2d. per lb. for duty-paid crystals, these figures continued till about August. This is excluding isolated big lots brought in from Belgium which that Government sold at "give away" prices. They could well afford to do so, as the material in question—some tons—was seized under Reparations, and eventually most of it found its way into this market. Some of this stuff changed hands at 3s. 4½d. per lb. duty paid. In September there were few offers on the market below 4s. 4d., and the average price went to 4s. 6d. Recently it has moved back to about 4s. to 4s. 2d. per lb. Tartaric acid has been one of the most

disappointing items in this market. Stocks seem to have been plentiful all the year round, with the demand slow and restricted. The question of price has been in buyers' favour all the time, and in the early autumn some big parcels are said to have changed hands at extremely low prices. The average prices obtained were 11½d. to 11½d. per lb., but with stocks gradually moving off, the position is brighter, and already 11½d. up to 1s. is being asked, and a further improvement is likely.

## Industrial Chemicals

	December 1921	December 1922	December 1923	December 1924
Acetic acid :				
80% pure .. ton	£43	£43 to £44	£50 to £51	£43 to £43 10s.
80% tech. .. "	£40	£42 to £43	£47 to £48	£41 10s. to £42
98% glac. .. "	£50	£65	£60 to £73	£67 10s. to £68
Acetone, B.G.S. .. "	£80	£130	£124	£90
Alum, lump .. "	£12 10s. to £16	£13	£10 to £10 10s.	£9 12s. 6d. to £9 15s.
Barium chloride 98/100% .. "	£13 10s.	£18 to £20	£14 10s. to £15	£12 to £12 5s. to £9 10s.
Bleaching powdr. 35/37% .. "	£16	£11 to £11 10s.	£10 10s.	£24 10s.
Borax, coml. cryst. .. "	£30	£28	£25	£26
Borax, coml. powdr. .. "	£31	£29	£26	£29
Borax, B.P. cryst. .. "	£35	£32	£29	£30
Borax, B.P. powdr. .. "	£36	£33	£30	£45
Boric acid, coml. gran. .. "	£65	£55	£48	£47
Boric acid, coml. powdr. .. "	£67	£57	£50	£51
Boric acid, B.P. cryst. .. "	£75	£61	£54	£55
Boric acid, B.P. powdr. .. "	£79	£65	£58	1/4 to 1/4½
Citric acid, B.P. lb.	2/3	1/8	1/4½	£81 to £82
Cream of tartar, R.P. 99/100% .. ton	£122	£93 to £95	£85	£4 17s. 6d.
Epsom salt, coml. .. "	£8 10s.	£6 to £6 5s.	£5	£47 to £47 10s.
Formaldehyde, 40% .. "	£80	£90	£63	£3 10s. to £3 12s. 6d.
Glauber's salt coml. .. "	£5	£3 10s. to £4	£3 10s. to £4	£3 10s. to £3 12s. 6d.
Lead acetate :				
Brown, broken .. "	£36	£34	£42 10s.	£46
White, cryst. .. "	£43	£37 to £38	£43 10s.	£47
Lime acetate, 80% grey .. "	£10 10s.	£14 10s.	£22	£15 5s.
Litharge .. "	£34 10s.	£32 10s.	£36 10s.	£46
Lithopone, 30% red seal .. "	£24 10s.	£21 to £22	£23 to £24	£19 10s. to £20
Mercury .. .. bot.	£10 5s.	£12 to £12 5s.	£10	£11 10s.
Oxalic acid .. lb.	8½d.	7d.	5½d.	3½d. to 3½d.
Pot. bichrom. .. "	7½d. to 8d.	6d. to 6½d.	5½d.	5½d. to 5½d.
Potash, caustic 88/92% .. ton	£32 to £33	£29 to £30	£33 to £33 10s.	£31 10s. to £32
Pot. chlor. .. lb.	5½d.	3½d. to 4d.	3d.	2½d.
Pot. permang., coml. .. "	10d. to 11d.	7d. to 8d.	9d.	7½d. to 7½d.
Pot. pruss., yellow .. "	1/2	1/5½ to 1/6	10½d.	7½d. to 7½d.
Saltcake .. ton	£5 to £6	£4 5s. to £4 10s.	£4 5s. to £4 10s.	£3 10s.
Soda ash, 58% light alkali .. "	£10	£8 to £9	£7 10s.	£6 15s.
Soda crystals .. "	£7	£5 12s. 6d. to £5 15s.	£5 5s.	£5 to £5 5s.
Sodium acetate .. "	£26	£23 to £23 10s.	£23 to £24	£23 7s. 6d. to £23 10s.
Sodium bicarb. .. "	£11 10s.	£10 5s. to £10 10s.	£10 10s.	£10 10s.
Sodium bichromate .. "	6d. to 6½d.	4½d.	4½d.	4½d.
Soda, caustic 70/72% ex wharf ton	£24 to £24 10s.	£19 10s.	£17 10s.	£15 10s.
75/77% shipping port .. "	£26 10s.	£21 10s.	£19 10s.	£17 10s.
Sodium chlorate .. lb.	3½d.	3d.	2½d.	2½d.
Sodium hyposulph. pea cryst. .. ton	£20	£16 to £16 10s.	£15 to £15 10s.	£13 5s.
Coml. quality .. "	£14	£10 10s.	£10 to £10 10s.	£9 5s.
Sodium prussiate lb.	8d.	10½d. to 10½d.	5½d.	4½d.
Sodium sulphide 60/62% solid ton	£22	£15 10s.	£14 5s.	£13 7s. 6d.
Sulphate of copper .. "	£28 10s.	£26 10s.	£25	£24
Zinc oxide, red seal .. "	£36 to £37	£52 10s.	£36	£38

## Pharmaceutical Chemicals

	December 1921	December 1922	December 1923	December 1924
Acetanilide .. lb.	1/4 to 1/6	1/4 to 1/6	3/10 to 4/-	1/11 to 2/1
Amidopyrin .. "	19/- to 20/-	14/-	15/-	15/-
Ammonium bromide .. "	11d.	8d. to 9d.	9d.	2/2 to 2/4
Aspirin .. "	2/10 to 3/-	2/9 to 2/11	3/9 to 3/11	3/1 to 3/3
Barbitone .. "	12/6	12/6	18/-	14/-
Benzoic acid .. "	2/3	1/11 to 2/1	4/- to 4/3	5/5 to 2/6
Benzonaphthol .. "	6/6	4/9 to 5/-	5/-	5/3 to 5/6
Betanaphthol resub. .. "	3/-	1/10	2/4	3/6
Calcium lactate .. "	2/- to 2/3	2/2 to 2/3	2/6	1/5 to 1/7
Chloral hydrate (duty paid) .. "	4/9 to 5/-	4/- to 4/2	4/2 to 4/3	4/-
Creosote B.P. .. "	3/6 to 3/9	2/9	2/6	2/2 to 2/4
Creosote Carbonate .. "	12/- to 12/6	10/-	6/6	7/6
Guaiacol carbonate .. "	12/- to 12/6	8/- to 8/6	14/-	9/6
Hexamine .. "	4/-	2/11 to 3/1	4/3 to 4/6	2/11 to 3/2
Hydroquinone .. "	4/2 to 4/3	3/6	4/- to 4/3	4/- to 4/3
Methyl salicyl. .. "	2/6	2/-	3/- to 3/3	1/9 to 2/-
Methyl sulphonal .. "	19/- to 20/-	14/-	24/- to 25/-	22/6 to 23/-
Milk sugar .. cwt	143/- to 150/-	97/6	82/6 to 85/-	87/6 to 90/-
Paraformaldehyde lb.	3/6	2/9	3/6 to 3/9	2/6
Paraldehyde .. "	1/9 to 2/-	1/4 to 1/6	1/6 to 1/7	1/3 to 1/5
Phenacetin .. "	6/- to 6/3	4/9 to 5/-	7/6 to 8/-	5/6 to 5/10
Phenazone .. "	8/-	6/9 to 7/-	8/6 to 8/9	7/- to 7/2
Phenolphthalein .. "	3/9 to 4/-	5/- to 5/3	8/6 to 8/9	5/6 to 5/9
Piperazine .. "	4/-	3/6	2/6 to 2/9	2/2
Potash, bromide B.P. .. "	8d. to 9d.	7d. to 8d.	8d. to 8½d.	1/6
Potash sulphoguaiac .. "	8/-	5/- to 7/6	7/-	5/6
Quinine .. "	3/-	2/2 to 2/3	2/3 to 2/4	2/1½
Salicylic acid, B.P. lb.	1/4 to 1/6	1/3 to 1/4	2/6	1/5½ to 1/7
Salol .. "	2/6 to 2/9	2/-	4/- to 4/6	3/6 to 3/8
Sodium bromide .. "	10d. to 10½d.	7½d. to 8d.	9d.	1/7 to 1/8
Sodium diethylbarb. .. "	22/- to 23/-	16/9 to 17/6	17/6	14/3 to 14/6
Sodium salicyl. .. "	2/- to 2/2	1/10 to 1/11	3/- to 3/1	2/2 to 2/3
Sulphonol .. "	17/- to 18/-	12/9 to 13/-	19/-	14/6
Tannic acid leviss, B.P. .. "	4/9	3/4 to 3/6	3/2 to 3/4	2/10 to 2/11
Tartaric acid, B.P. .. "	1/4½ to 1/5	1/1½ to 1/2	1/1½	11½d. to 1/-
Thymol .. "	22/-	18/6 to 19/-	13/9 to 14/3	18/6 to 19/-
Vanillin .. "	40/-	24/-	24/- to 26/-	25/3 to 25/6

## INDUSTRIAL CHEMICALS

In this section the home makers of soda products have once again more than held their own against competition. With the exceptions of bichromate, chlorate, acetate and hyposulphite, importations have been of no importance. The makers' business in exports of these chemicals has been fully up to expectations. Prices have changed but little, and only small reductions are looked for on contracts to home consumers for the coming year. In potash products the position at the close is very bright with business brisk and prices firm. A syndicate of producers in Germany has been formed, with the result that competition has been eliminated and prices for shipment advanced. Values had declined during the first eight months of the year, but have since regained most of the loss. For instance, caustic potash (88 to 92 per cent.) solid, in January was £33 per ton spot, then it fell away to about £27 10s. to £28, and has now moved back to £31 10s. to £32. Yellow prussiate of potash of British make was being exported to the Continent early in the year, and now material from the latter source practically commands this market. Supplies of potash salts are now much freer from Germany than at any time since the armistice.

The British makers of borax report a good year of business for home trade. At the same time the usual quantities of foreign borax have come in on competitive lines. The seaboard trade seems to have been disappointing, more from lack of demand than inability to meet competition. Boric acid sales seem to have been rather poor, and the reduction in price failed to have the effect of improving matters. In acids for industrial purposes the market movements have been many and varied, caused by temporary shortness of supplies, alterations in import duties and levies, but the whole year has been one of slow demands and generally restricted buying. Acetic has proved disappointing, especially the last few months, during which prices have fallen from £49 to £42 per ton for 80 per cent. Heavy stocks are held on the Continent. Citric acid has failed throughout the year to liven up, and values of B.P. crystals have remained at uneconomic levels all the time. The market has been overloaded, but as the year closes, conditions show a decided improvement. Stocks are now practically normal and prices should move up to something like the cost of production. Oxalic acid did fairly well during the first six months of the year, but when the German syndicate broke up, prices for shipment became extraordinarily cheap. The spot price to-day is such that those who can afford to do so cannot go wrong in buying, for values are bound to go up. Most of the general heavy chemicals, such as barium chloride, bleaching powder, epsom and glauber's salt, lithopone, show a limited fall in value, while they have never attracted any really big volume of business.

Lead products finish the year at higher prices, on account of the big advance in the price of the metal. Importers' prices for acetate, litharge and red and white leads have generally been slightly below those quoted by British makers, but a very fair volume of business has gone to the home source of supply, on account of the favourable quality of their materials, many users being willing to pay a little more for the home-produced articles. Cream of tartar has moved from £85 to £81 per ton during the year, and business has been keenly competed for.

## COAL TAR PRODUCTS

In the coal tar section there has, without exception, been a general and rather marked decline in values. Throughout the year supplies of most products have exceeded the demand. Carbolie acid crystals commenced the year at the high rate of 11d., and finished at little more than half that figure. For some months business has been very disappointing and offers of bulk packing have been at cut prices. Creosote oil did not attract much big business until the latter months of the year. Prices are well down on the twelve months, but any further reductions are not likely to be drastic, and some appreciation would not be surprising. Cresylic acid closes at level figures and is one of the steadiest items in

this market. There is nothing to say in favour of pitch. Throughout the year the demand has been far below expectations, and without a break from January to October prices weakened, moving from 105s. to 45s. per ton, f.o.b. East Coast. During November the position improved a little, with the price round about 55s., and a limited business, but conditions leave much to be desired, both as regards price and demand. However, this may easily come along in the New Year.

## Coal-Tar Products, etc.

	December 1921	December 1922	December 1923	December 1924
Aniline oil and salt lb.	1/4	10d.	9d to 10d.	8d. to 8½d.
Betanaphthol .. "	1/9	1/4 to 1/4½	1/1 to 1/2	1/1 to 1/2
Benzol, naked gal.	3/3	1/7	1/6½ to 1/8	8d. to 1/7
Carbolic acid, cryst .. lb.	6d.	8½d.	11½d.	5½d. to 5½d
Cresylic acid .. gal.	3/6	2/3	2/- to 2/2	2/- to 2/2
Creosote oil .. "	8d.	7d.	9½d.	6½d.
Hexamethylene lb.	—	2/10 to 3/-	3/9 to 4/-	3/3
Naphthalene crude .. ton	£5 to £9	£5 to £8 10s.	£5 to £11	£5 to £9
Flakes .. "	£19	£17	£19	£15
Crystals .. "	£18 10s.	£16	£17	£15
Powder .. "	£19	£17	£19	£15
Solvent naphthas: 90/160 .. gal.	2/10	1/9	1/1 to 1/2	1/3
90/190 .. "	2/8	1/8	1/2	1/1
Pitch .. ton	60/- to 70/-	120/-	105/-	52/6
Pure methyl alcohol ..	—	£110 to £115	£90	£60
Pyridine .. "	—	12/-	22/-	18/6

## Java Cinchona and Quinine Exports

The exports of cinchona, and also of quinine, from Java during the first eight months of the present year show an appreciable increase compared with the figures for the corresponding period of 1923. The total exports of quinine from January to August inclusive amounted to 141,369 kilos, against 131,287 kilos in the same period of 1923. The following table shows the amounts of cinchona bark exported during the first eight months of 1923 and 1924:—

	January-August	
	1923	1924
	kilos	kilos
British India ..	363,000	51,000
Great Britain ..	354,000	434,000
Holland ..	2,756,000	3,528,000
Hong Kong ..	2,000	—
Japan ..	723,000	777,000
Singapore ..	—	29,000
Other countries ..	—	1,000
Total ..	4,203,000	4,820,000

## Java Citronella Oil

The following table shows the exports of citronella oil from Java during the period January to August, 1924, and the corresponding figures for the same period of 1923:—

	January-August	
	1923	1924
	kilos	kilos
Australia ..	12,174	6,670
China ..	5,994	7,037
France ..	51,709	159,387
Germany ..	4,321	4,155
Great Britain ..	72,501	73,797
Holland ..	14,588	26,064
Hong Kong ..	265	1,966
Italy ..	—	267
Japan ..	36,995	30,668
United States ..	113,959	74,461
Other countries ..	366	—
Total ..	312,872	364,452

SOLUBILITY OF PHOSPHATE FERTILISERS.—Lecturing at Bedford on December 20, Mr. Eden (Rothamsted) said that the order of solubility of the phosphates was:—

(1) Superphosphates, (2) basic slag, (3) various bone meals, (4) rock phosphate. The last-named was insoluble, and it was only because soil moisture was slightly acid, with dissolved carbonic acid from decayed vegetation, that it was of use at all. It was good in places where there was heavy rainfall, or where the land was sour.



Letters for this section should be written on one side of the paper only. Correspondents may adopt an assumed name for purposes of publication, but must in all cases furnish their real name and address to the Editor.

### The Proposed By-Laws

SIR,—On perusing the proposed new by-laws relating to the Pharmaceutical Society's examination, one cannot see at first what object is attained by retaining the Major examination. The only difference on paper between the two courses is that the Pharmaceutical Qualifying examination contains botany, while the one for chemist and druggist does not. Perhaps it is intended that the latter examination is to be only for those candidates who intend to open or manage a shop, and the pharmaceutical qualification for those who desire a higher life and wish to go on for the new degree. Even so, what is the use of it? Why not have made the present Part I an intermediate examination, Part II the Qualifying examination, with the right to open shop, and lastly the degree?—Yours faithfully,

EXAMINEE (8/12).

SIR,—From the remarks of "Xrayser II" (*C. & D.* December 20, p. 889) it would appear that the opinion of the branches of the Society was not even asked for in reference to the new by-laws. When the institution of the branches was first mooted there were many members of the old associations who expressed a fear that branches would be merely spoon-fed from headquarters, and that invitations for opinions would be merely a polite way of telling the branches to accept the Council's ideas already formulated. It would seem that more than this has come to pass.—Yours, etc.,

BRANCH MEMBER (22/12).

### Our "Juniors"

SIR,—It would appear, according to "Methodical's" description of the modern "junior" (*C. & D.*, November 15, p. 727), that the faults are all on the side of the latter. In many cases, yes, but I beg to remind "Methodical" that one is apt to meet slovenly and untidy people, regardless of age and experience. Personally, I have had a fair amount of experience of "clearing up messes" due to the "slap-dash" work of those who should have become more methodical with years of experience. Some people imagine, when engaging a "junior," that, in addition to the usual qualifications regarding window dressing, dispensing, and photography, etc., they are also procuring the services of a "batman." They not only expect this, but, to add insult to injury, they offer him a "salary" 40 per cent. below that paid to a tram conductor. Regarding the straining of mixtures, I have actually met pharmacists who did not sanction such an operation—only with regard to private prescriptions. Panel prescriptions were not to be strained—only when the "guy'nor" noticed that this had not been done. The majority of assistants find, when commencing studies at a school of pharmacy, that they have to learn dispensing. To me it would appear that dispensing, in the true sense of the word, is not taught in the majority of pharmacies. Of course, I am not referring to such dispensing as *mist. alba 3viij.*, but to work which requires some special knowledge—i.e., emulsions, capsules, etc. The modern "junior" may be at fault in some respects, and yet, strange to say, he is always in demand. Those who find him unsatisfactory must surely, in the interests of business, obtain the services of someone older in years, and (perhaps) a little more methodical. Finally, although the average "junior" may not be a paragon, I think that at the end of the day's work he can usually claim to have done more than a fair share of the aforesaid.—Faithfully yours,

ALOES (18/11).

SIR,—Although I have been the pained witness of all, and more, detailed by "Methodical," it has always been in the departmental store rather than in the average pharmacy. When I say "more," I have in mind assistants started on a job of weighing up borax, sodii bicarb., pulv. glyc. co., etc., getting this partly done, then being called away and all left open and exposed over a week-end—a thing unthinkable in the ordinary trade. The blame is of course on proprietors and managers, many of whom have been themselves badly trained to start with. But one would imagine that self-interest would make them reasonably careful and observant. My own case is perhaps worth mention. A gift of observation, well trained from earliest days, whereby from long practice a glance round reveals everything to you—especially things out of place and dirt. You see rather more than tends to comfort, and aiming to be a Sherlock Holmes, you are liable to get the reputation of Nosey Parker. Method, cleanliness, tidiness, etc., are born with you and cannot be helped; and, to say the truth, I have had to adopt the philosophic habit of just quietly cleaning the scales, dusting the counter, and tidying up. Occasionally it happens that thanks come to you from old pupils for advice and example in these respects, and you feel that after all life has some compensations.—Yours, etc.,

NARETEV (19/11).

SIR,—I do not wish to deny the statements of "Methodical" in the *C. & D.*, as some may be right in some cases, but I cannot imagine one of our seniors doing the rounds clearing up after a junior. My first impression of the trade or profession was that it was part of my work as an apprentice to go round the shop cleaning up and shutting drawers left open by one of my methodical seniors. "Methodical" also seems to infer that these delinquencies are only true of to-day's juniors; but they were probably true when our methodical seniors were unmethodical juniors, or else why should a mop cloth be a necessary part of a chemist's equipment? As regard the dispensing of medicines without straining, etc., in most cases the junior is following the noble example of his methodical senior and dispensing *sec. art.* Are not you making a mountain out of a molehill, "Methodical"?

I am, etc.,

UNMETHODICAL SLAP-DASH JUNIOR (17/11).

## Dispensing Difficulties and Notes

### Strychnine and Liquorice Mixtures

SIR,—I should be glad of your comments on the following. I believe the strychnine and glycyrrhizin form an insoluble compound. Is there a danger in dispensing the scripts?

I	II
Ferri et ammon. cit. 3ij. ʒj.	Ext. ergot. liq. ... 3vj.
Liq. arsen. hyd. ... mxl.	Liq. strych. ... 3i.
Liq. strych. ... 3j.	Ext. glycyrrh. liq. ... ʒss.
Ext. glycyrrh. liq. ... ʒj. 3ij.	Glycerin. ... ʒss.
Aq. chlorof. ... ad ʒx.	Aq. ... ad ʒvj.

Yours faithfully,

J. J. A. S. (15/11).

[In a somewhat concentrated mixture with an acid reaction, there might be precipitation of glycyrrhizin along with some of the alkaloid. In both prescriptions which you have submitted the amount of liquid ordered in proportion to the active constituents is so much as to preclude any prospect of precipitation of a dangerous nature. Both mixtures are very much improved in appearance and taste by being neutralised—both being acid in reaction when compounded as written—by careful addition of liquid ammonia. When so completed No. 1 shows no precipitate after two weeks, while No. 2 possesses only a thin line of grey deposit after the same lapse of time.]

## An Iron and Arsenic Mixture

SIR,—Would you please say what is formed if the following mixture is dispensed, omitting none of the ingredients:—

Syr. ferri iodid.	...	...	3ij.
Potas. bicarb.	...	...	3iij.
Liq. arsenicalis	...	...	℥i. xiv.
Liq. Donovan.	...	...	3ij.
Spt. chlorof.	...	...	3ij.
Aq. menth. pip.	...	ad	3viii.

Faithfully yours,

PRO PATRIA (18/10).

[The only change of importance which occurs in this mixture is the reaction between the ferrous iodide of the syrup of ferrous iodide and the potassium bicarbonate, ferrous carbonate and potassium iodide being produced. The ferrous carbonate is light in colour and rises to the surface at first; later, as it becomes oxidised, it changes to a darker colour and falls to the bottom of the mixture. The solution of arsenic and Donovan's solution may be regarded as remaining undisturbed. The ferrous carbonate in both its conditions diffuses throughout the mixture when shaken. There is therefore no need to omit any of the constituents of the mixture nor to add to them.]

## Creamy Liniment

SIR,—Could you advise me as to the best way to make a good emulsion of the following:—

Camphor	...	...	4 oz.
Turpentine	...	...	4 oz.
Linseed oil	...	...	32 oz.
Water	...	...	to 48 oz.

Yours truly,

D. W. (28/11).

[Were it not that camphor is thrown out of solution when the water is introduced, there would scarcely be need for the employment of an emulsifier. The appropriate adjunct to use, however, in the circumstances is soft soap, after the method adopted in the Pharmacopœia for the preparation of liniment of turpentine. Dissolve about three ounces of soft soap in the water by means of heat, taking care to make good any loss of water which may occur by evaporation; then, the camphor having meanwhile been dissolved in the turpentine and linseed oil, introduce gradually the mixture to the soap solution, stirring continuously until the addition has been completed. In this way is produced a nice homogeneous cream which separates only very slightly after standing at rest for a day or two, and tends to become thicker as time goes on.]

## Subscribers' Symposium

For interchange of opinion among "C. & D." readers and brief notes on business and practical topics.

## Insurance Formularies

I see that Dr. Cox, secretary of the British Medical Association, has stated that he is opposed to patent medicines on the ground that one remedy is not suitable for everyone suffering even from the same disease. This naturally brings to one's mind the formulary books issued for the use of panel practitioners when treating insured persons, and is an endorsement of pharmacists' objections to the use of these formularies. If the objection to a standardised mixture holds good for advertised remedies, then it does for prescribed ones as well.—*Unrepresented* (24/11).

## A Frivolous Reminiscence

Your Compendium articles on benzine and its storage will remind your more frivolous readers of the parody of an old nursery rhyme:—

Mary had a little lamp  
Filled full of kerosene;  
One day she tried to blow it out,  
And hasn't since benzine.

## Legal Queries

J. B. (9/12).—Registration is compulsory for limited companies. See *C. & D. Diary*, 1925.

Curious (15/12).—"PECTORAL MIXTURE" is not a dutiable title under the Medicine Stamp Acts.

C. S. (5/12).—"C—'s Cough Lozenges" is a dutiable title unless used on bulk packages and sold loose.

B. C. (5/12).—Our view is that adalin is not a poison within the meaning of the Pharmacy Acts. As we explained in the *C. & D.* at the time the veronal group was scheduled, adalin is not a ureide, nor can it be stated to be poisonous, as no records exist of any fatal accidents.

J. G. L. (8/12).—The initials you use being a brand name, i.e., not applied solely to this balsam, would not render the preparations liable to medicine-stamp duty. The preparation is, however, liable to duty, because of the combination of "chest, throat and lung" with the word balsam.

C. T. (16/12) is the manager of a shop at a salary of slightly under £5 a week. Is he exempt from liability to National Insurance by reason of his position? [As "C. T." is employed under a contract of service and his remuneration does not exceed £250 a year, he must be insured under both the National Health and the Unemployment Insurance schemes. There is no exemption in favour of managers.]

H. R. L. (15/12).—Some years ago X was appointed sole agent for B territory and Z as sole agent for D territory. D has recently been incorporated in the borough of B. Is X entitled to open a branch and sell goods in the old D territory? [The reply to this inquiry depends entirely upon the construction of the agreements and the intention of the parties at the time the agreements were made. It is probable, however, that the areas defined in the agreements were purely geographical and that a change in the arrangement of the district of an administrative nature would not justify any disregard of the spirit of the agreements.]

Puzzled (18/12).—"Dangerous" drugs sold or dispensed require two entries, one under the Pharmacy Act, 1868, Sections 1 and 17, and the other under the Regulations of the Dangerous Drugs Act 1920, in the Dangerous Drugs Register. The latter may be a cross-reference to the first entry in the Poisons Book or Prescription Book. The terms "Record of morphine" used as a column heading in "dangerous" drugs registers is that used in the preamble of the Dangerous Drugs Act 1920, i.e., any sales by dispensing or otherwise above the strength of 1 in 500. Prescriptions below this strength (except National Health Insurance) are entered in the Prescription Book, but no cross entry is needed in the "dangerous" drugs register.

F. W. W. (16/12) asks whether he cannot claim the allowance, or a proportionate part of the allowance, granted to a parent in respect of a child of his under the age of 16 under these circumstances. The child was born in May of this year, and is now living; and the income-tax assessment is, of course, made on the father in respect of the year commencing April 6 last, or about one month before the child was born. The income-tax authorities refuse any allowance, but the local collector and others say a proportion of the annual allowance of £36 should be conceded. [The income-tax authorities are right. The allowance of £36 a year is granted expressly by the Acts when the child in respect of whom it is claimed was alive at the "beginning of the year of assessment." As the current income-tax year began on April 6 last, a month before the child was born, it is clear that the conditions of being alive at beginning of the year of assessment is not fulfilled.]

The last [*C. & D.* Poisons Card, No. 4] proved very useful, as did also the smaller card which we distributed among our medical friends.—C. S. A. (19/12).

## Miscellaneous Inquiries

When samples are sent particulars should be supplied to us as to their origin, what they are, what they are used for and how. We do not undertake to analyse and report upon proprietary articles nor to publish supposed formulas for them.

**S. M. T. C. (24/11).—(1) HOW TO BECOME A SOLICITOR.**—A person who intends to become a solicitor must first pass an examination in subjects ordinarily learnt at school. The subjects for the Preliminary Examination held by the Law Society are: Latin, English, arithmetic, geography, history and two of several optional subjects, which include modern languages. Some public examinations, such as the London Matriculation, the First Class of the College of Preceptors and the Oxford or Cambridge Locals, are accepted as the equivalent of the Preliminary Examination. Having passed one of these examinations, the would-be solicitor must be articled to a member of the profession. The stamp duty on the articles is £80, and usually a premium of upwards of £100 is payable. The term of articles is, in the ordinary way, five years, but three years is sufficient in special cases; for example, if the pupil is a graduate of a University. After the expiration of the first year of his articles, the articulated clerk may sit for his Intermediate Examination, which is divided into two parts: (1) Elementary legal subjects, and (2) book-keeping and trust accounts. The two parts may be sat for separately. The Final Examination is taken at the end of the period of articles, and is confined to subjects covering every branch of the law. Having passed these examinations, the articulated clerk may apply to be enrolled as a solicitor, and will be granted an admission certificate, which bears a stamp duty of £25. Before he is eligible to practise, however, the solicitor must take out a practising certificate.

**(2) HOW TO BECOME A BARRISTER.**—No person can become a barrister otherwise than by being "called to the bar" by the benchers of one of the four Inns of Court—Lincoln's Inn, the Middle Temple, the Inner Temple, and Gray's Inn—who alone possess the right to admit barristers to their profession. The benchers of each Inn call only those members of their own Inn who have kept the requisite number of terms and have passed their examinations. The first step, therefore, to be taken by an intending barrister is to secure admission to one of the Inns. The candidate for admission must have passed one of a number of specified examinations—e.g., the Entrance or Matriculation examinations of most of the Universities, the Oxford or Cambridge Senior Local, and so on; and he must also produce evidence of good character in the shape of certificates from two responsible persons resident in the United Kingdom who have known him personally for upwards of one year. Solicitors, parliamentary agents, professional accountants, actuaries, land agents, surveyors, etc., and their clerks are not eligible for admission unless they have *bona-fide* and entirely ceased to be and to practise as such; nor is any person engaged in trade, unless he can satisfy the benchers that his occupation would be compatible with his qualification for and practice of the profession of a barrister. The fees payable on admission vary a little in each Inn, but average about £55 to £60, and for this payment the student secures admission to the lectures and classes conducted by the Council of Legal Education. In addition, the student must deposit a sum of £100 as "caution money," which will be returned to him on his "call," or earlier withdrawal from the Inn; and a further deposit of £50 to be held against his payment of "commons," term and annual dues, etc., will be required unless he can persuade two "responsible persons" to enter as co-sureties into a bond for this amount conditioned upon his payment of such dues. Having been admitted, the student must pass his Bar examination, with which object he usually attends the classes referred to above, and sometimes avails himself also of the services of one of the many "coaches." The examination consists of two parts, each in four sections. The four sections of part one may be taken separately, but all four sections of part II must be passed at one time. A small fee is payable on sitting for each examination. The student must also "keep" twelve terms, of which there are four in each year, and this he does by dining in Hall at least six times in each term. This custom has provoked the ribald

saying that "a student gets to the Bar like a rat through a cheese by eating his way through!!" Having eaten his dinners and passed his examination, the student must secure an introduction to one of the benchers of his Inn, by whom he will be "proposed for call." Then, after having been proposed, having made a declaration in a prescribed form, and having paid a further sum in fees, the student is duly called to the Bar, signs the roll and becomes a fully-fledged barrister, entitled to audience in all courts. It is usual for the barrister who intends to practice to spend six or twelve months, whether before or after his call, in "reading in chambers" as a pupil.

**J. S. (29/11).—BOARD OF HEALTH DIARRHŒA MIXTURE "P.F. 1A."—**

Mist. cretæ co. ...	...	...	5j.
Conf. aromat. ...	...	...	gr. x.—gr. xv.
Tr. opii ...	...	...	℥v.—℥x.
Tr. catechu ...	...	...	5ss.—5j.

Pro dosis.

The conf. aromat. intended is *pulv. aromat.* B.P. 1864, as follows:—

Cinnamon ...	...	...	4 oz.
Nutmeg ...	...	...	3 oz.
Saffron ...	...	...	3 oz.
Cloves ...	...	...	1½ oz.
Cardamoms ...	...	...	1 oz.
Refined sugar ...	...	...	25 oz.

Reduce separately to fine powder and pass through a fine sieve.

**T. F. (29/11).—BOOKS ON BUGS.**—Natural History Museum Pamphlets: No. 2, "The Louse"; No. 5, "The Bed-bug" (1d. each). Information on insect pests is also given in A. E. Shipley's "Minor Horrors of War" and "More Minor Horrors" (Murray, 1s. 6d. each).

**J. C. (1/12).—ELECTRIC LINIMENT, "P.F. 1."—**

Rad. anchusæ ...	...	...	5ss.
P. capsici ...	...	...	5j.
Oil. tereb. ...	...	...	Oj.

Macerate seven days, filter and add:—

Oil. camph. ess. ...	...	...	Oj.
Oil. sassafras ...	...	...	5j.
Oil. origani ...	...	...	5ss.
Methyl salicylatis ...	...	...	5ij

**A. W. P. (2/12).—**There have been so many formulas for cold mixtures published in the *C. & D. Diaries* of late years that we are not inclined to add to them.

## Retrospect of Fifty Years Ago

Reprinted from  
"The Chemist and Druggist," December 15, 1874.

### Lascar Sal

Among the newspaper paragraphs of the month, one has appeared intimating the death of an old acquaintance of ours entitled Lascar Sal. This lady had greatness thrust upon her by the fact that her apartment was selected by Dickens for the opium-smoking scenes described in "Edwin Drood." We claim to have been the first to identify her room as the veritable original of Dickens's story, though several enterprising journalists have sent their "specials" to Bluegate Fields since our description. The poor creature seems to have died in the midst of the utmost squalor. In her room were found several hundreds of white mice, and when scarlet fever attacked her, it is no wonder that in that miserable den she succumbed at once. Lascar Sal was more frequently, we fear, the subject of alcoholic than of opium intoxication. But when fairly sober she appeared to be a quiet, well-behaved, respectable woman, who had seen better days. Her own theory, indeed, was that she was born and brought up in one of the West-End squares of London, had run away from home to marry a dashing young Indian nabob, who had taught her the art of opium-smoking, and then had deserted her. The opium-smoking apparatus which she offered her customers was of the meanest character, and notwithstanding the little impetus given to her establishment by Mr. Dickens, it is more than probable that "Sal" was never able to compete with the more genuine saloon on the opposite side of the court, and that hopeless poverty and misery were her only companions in death.



[Commenced C. &amp; D., July 5, 1924]

**Bill Broker.**—A person engaged in the business of buying and selling bills. Where a person wishes to remit money to another country he will purchase bills payable in that country from a broker who may have previously bought bills from persons who have to receive money from the same country. Where more money is to be remitted than received, the broker will charge slightly higher than face value; they are then said to be at a premium, and conversely at a discount. The price never falls below what is termed the "specie point." If the premium rises too high, it is cheaper to remit specie.

**Biochemical Society.**—This society was instituted for facilitating intercourse between biologists and chemists interested in the investigation of problems common to both, as in agriculture, brewing, animal and vegetable physiology and pathology. Vitamin therapy has considerably enlarged the scope of the Society, which now includes problems of nutrition and growth, especially deficiency diseases. Candidates for election must be proposed by two members or nominated by the Society's Committee. The hon. secretary is Dr. H. W. Dudley, National Institute for Medical Research, Hampstead, London, N.W.3.

**Birch Tar.**—A tar obtained in Russia from the bark of *Betula alba*, the common birch, and used in that country in currying leather, to which it gives the characteristic odour of "Russian leather," due to the presence of pyrobetulin. The bark is stated to yield about 20 to 30 per cent. of this tar. Considerable difficulty has at times attended the export of birch tar, which appears to have been prohibited, probably to prevent imitation of Russian leather. But the tar has another application in medicine. In 1883 it was pointed out by Professor Greenish (P.J. (3) xiv., 439-51) that it was proved by Kapori to be a valuable remedy in papular eczema, the intense irritation caused by that disease being greatly relieved by a tincture of birch tar. It was also found to be a useful remedy for ringworm. Mr. Peter MacEwan in 1885 found that there were in commerce three varieties of birch tar, known as Russian, German and Dutch. The Russian birch tar had a sp. gr. of 0.955, forming a thick brown-black oil. The German formed a limpid brown oil and contained much colouring matter, sp. gr. 0.967. The Dutch oil was a limpid and translucent red-brown oil of sp. gr. 0.941 (P.J. (3), xv., p. 769). A distinctive test for the Russian birch tar is that an aqueous solution of one part in ten of water gives a pink colour with potassium cyanide, intensified by solution of ammonia, which neither the German nor the Dutch oil gives. The Russian oil was found also to yield 64.47 per cent. of non-saponifiable fatty bodies, against 16.12 per cent. in the German and 36.4 per cent. in the Dutch. The last two oils are therefore evidently not pure birch tar from *Betula alba*, although both possess an odour of pyrobetulin, but in much less degree than the Russian. At present there are two articles in commerce, one known as *oleum rusci*, B.P.C., or *oleum betulae albae*, and the other as *oleum rusci rect.*, obtained by steam distillation from the crude tar and official in the Dutch Pharmacopœia, where its sp. gr. is given as 0.920 to 0.945. It is a light brown oil consisting chiefly of guaiacol and cresol, with smaller quantities of cresol and xlenol. But Russian birch tar also contains pyrobetulin, which J. Wheeler showed to possess considerable value as an antiseptic and patented its use (Ph. J. (4), ix, p. 494). He found the bark to contain 10.12 per cent. of betulin, which can be sublimed

in a current of air, and it is probable that only by the distillation *per descensum* that the whole of it is obtained in the state of pyrobetulin. Formulas for the preparation of birch tar are given in Squire's Companion to the Pharmacopœia under *Betulae albae oleum*, and for tincture and ointment, and in the B.P.C. under *oleum rusci* for a liquor and ointment. The name *oleum rusci* was believed by the late Thomas Greenish to be an abbreviated or corrupted form of *oleum russicum*, as there is no evidence that the *Ruscus aculeatus* is used to produce a tar. See also Ph. J. (4), 31, pp. 4-5, (4), 52, p. 508.

**Bird Lime** can be prepared from the bark of the holly (*Ilex aquifolium*, Linn.), the mistletoe (*Viscum album*), and various other plants, by boiling and allowing the strained boiled bark to ferment for some weeks. It is a viscid tenacious substance and is used for spreading on branches, twigs and other perches of small birds for catching them; also used in fly catchers. Japan bird lime (from *Ilex integra*) was, prior to the war, in regular supply to this market, but imports have fallen off.

**Birkbeck College.**—Founded, under a different title, at the close of the year 1823. Dr. George Birkbeck, who was the prime mover, was appointed a director, and promoted its interests during the remainder of his life. The present principal is Mr. George Senter, D.Sc. (Lond.), Ph.D. (Leipzig), F.I.C., Ph.C. The classes (day and evening) cover a wide range of subjects, including Part I of the Qualifying examination (day course, £7 10s. a term), and complete courses for University of London science degrees. The address of the College is Breams Buildings, Chancery Lane, London, E.C.4.

**Birmingham Schools of Pharmacy.**—The oldest of the existing Birmingham schools in which students are taught in pharmacy subjects is the Municipal Technical School, Suffolk Street, established in 1889. Principal, Mr. W. E. Sumpner, D.Sc.; lecturers in pharmacy, Mr. H. Berry, Ph.C., and Mr. R. H. Rowson, Ph.C. Other schools are the Birmingham and Midland College of Chemistry, Pharmacy and Botany, and Handsworth Technical School. Particulars of all these institutions are given in the annual Educational Number of THE CHEMIST AND DRUGGIST.

**Birmingham University.**—Established by charter in 1900; the nucleus was Mason College, founded in 1875, and Queen's College, dating from 1840. Principal, Mr. C. Grant Robinson, M.A.; registrar, Mr. John H. Costain. The faculties cover a wide range of studies in science, medicine and dentistry. Particulars are given annually in the Educational Number of THE CHEMIST AND DRUGGIST.

**Birth Certificates, Obtaining.**—At the time of registration of a birth a registrar must, on demand, give a certificate of having registered the birth, for which certificate a fee of 3d. may be charged. Certified copies of entries in the registers of birth may be obtained either at the General Register Office, Somerset House, Strand, London, W.C., or from the superintendent registrar or registrar who has custody of the register which contains the record of the particular birth of which a certificate is required. In the ordinary way a certificate costs 3s. 7d., being 1s. for the search for the entry, 2s. 6d. for the certified copy, and 1d. for stamp duty. If an extensive search is involved, the charge is increased; but where the approximate date of the birth is known this does not arise. If a certificate is applied for by post the cost is 5s. 1d. Certificates of birth may be obtained at reduced rates where they are required for the purposes of certain Acts of Parliament; thus they cost 1s. only when required under the Friendly Societies Act, 1896, and Savings Banks Act, 1887, and 6d. when required under the Factory and Workshop Act, 1901, and the National Insurance Acts, 1911 and 1913. A complete register of births in England and Wales since 1837 is kept at Somerset House. An original certificate of birth, or a certified copy, must be produced by candidates for the Qualifying examination of the Pharmaceutical Society of Great Britain in order to fulfil the requirements of the Society's by-law which enjoins that "all persons

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shall, at the time of giving notice of intention to present themselves . . . , satisfy the Registrar that they have attained the full age of twenty-one years."

**Births, Registration.**—The father or mother of every child born alive must, within forty-two days after the birth, furnish certain particulars to the registrar for the district in which the child was born. The particulars required are: (1) Date and place of the birth; (2) name and sex of child; (3) name and description of father; (4) name and maiden surname of mother; (5) signature, description and residence of informant; and (6) date of registration. Failing the father or mother, information as to a birth must be given, and the register must be signed, by the occupier of the house in which the child was born, by one of the persons present at the birth, or by the person having charge of the child. Certified copies of all entries of births made by district registrars are sent quarterly to the Registrar General at Somerset House, London.

**Bismuth Compounds.**—Bismuth occurs both in the metallic state and as oxide and sulphide widely distributed in small quantities. The crystalline rhombohedra of metallic bismuth have an iridescent lustre, which makes them a popular specimen in chemical displays. Bismuth metal is largely used in the arts for making type metals and fusible alloys (which contain 50 per cent. of bismuth with varying proportions of lead, 25 to 30 per cent., and tin, 18 to 25 per cent.). Wood's fusible alloy, melting at 65° C., consists of bismuth 4, lead 2, tin 1, and cadmium 1. Bismuth, together with antimony, forms the most sensitive thermo-electric couple for thermopiles. For pharmaceutical purposes the metal must be carefully purified from arsenic, copper, silver, or lead, which the commercial metal generally contains.

**Bismuth Ore** is imported into Great Britain chiefly from Chile, Hongkong and Australia, while bismuth metal comes from Bolivia, Peru, Chile and Saxony. The metal as sold is guaranteed to test 99.5 per cent. pure bismuth, but deliveries average 99.9 per cent. It is usually packed in cases of from 2½ to 3 cwt. and sold ex warehouse in London at a fixed price controlled by a syndicate. The usual London merchants' form of contract is employed, and, in case of dispute, arbitration must follow the rules of the London General Produce Brokers' Association. Sales are usually for cash against delivery, and samples are not submitted, as sales are on the basis of guaranteed quality. The production and market price of the metal have been strictly controlled for many years. Bismuth ore to be marketable should contain at least 10 per cent. of metallic bismuth by assay.

**Bismuth Salts** are largely used in medicine, both internally as a gastric sedative, owing to deposition on the walls of the intestinal tract, and externally as a dusting powder.

**Crystalline bismuth nitrate**,  $\text{Bi}(\text{NO}_3)_3 \cdot 5\text{H}_2\text{O}$ , is made by dissolving the metal in nitric acid and is used chiefly for making other bismuth salts. The medicinal *bismuth subnitrate* or bismuth oxynitrate ( $\text{BiONO}_3 \cdot \text{H}_2\text{O}$ ) is obtained when bismuth nitrate solution is poured into considerable excess of water. Flake white of commerce consists of commercial basic bismuth nitrate.

**Bismuth oxycarbonate**, or subcarbonate (=bismuthi carbonas B.P.) ( $\text{Bi}_2\text{O}_3\text{CO}_3$ ),  $\text{H}_2\text{O}$ , is obtained by precipitating bismuth nitrate solution with ammonium carbonate, the density of the preparation varying considerably, according to concentration of solution and rate of mixing. Some modern kinds are relatively bulky and do not require a suspending agent. The heavier forms are used in cachets, tablets and lozenges. A standard bismuth meal for x-ray diagnosis consists of 4 oz. of bismuth carbonate with 1½ oz. of milk-sugar made into a thin, pasty liquid. Many radiographers prefer to use a special bismuth oxychloride (free from nitrate) in place of subcarbonate of bismuth, but barium sulphate (q.v.) is replacing both these compounds.

**Bismuth oxychloride**,  $6\text{BiOCl} \cdot \text{H}_2\text{O}$ , is the pearl white used in cosmetics, and is formed by interaction of bismuth nitrate and sodium chloride solutions. The popular *liquor bismuthi* B.P., or *liquor bism. et ammon. cit.*, is prepared from bismuth oxynitrate and citric acid solution, the precipitate after washing being dissolved in ammonia; but *bismuth citrate* is now used largely in making the many forms of *mistura bismuthi* c. pepsin, as it is not so liable to deposit. Soluble *bismuth sodium tartrate* is used in acid bismuth and pepsin mixture (i.e., without ammonia) and for injection. *Bismuth salicylate*,  $\text{C}_6\text{H}_5(\text{OH})\text{COOBiO}$ , is a valuable intestinal antiseptic. *Bismuth tannate* is used in diarrhoea as an astringent. *Bismuth subgallate* (=Dermatol) and *Bismuth oxy-iodo-gallate* (=Aiol) are antiseptic dusting powders. The forms in which bismuth is used in medicine are innumerable and include mixtures, tablets, cachets, lozenges, snuffs, ointments, pastes, powders, and suppositories.

**Bites of Dogs.**—It is usually sufficient to paint with tr. iodi, but, if badly lacerated, stitching may be necessary and medical assistance should be sought.

**Bitters, Sale of.**—The condition for the sale of bitters depends upon the composition of the article. In the case of a spirituous compound, the appropriate spirit licence should be held for its sale. In the case of a wine compound, a wine licence is required, but if the strength exceeded 40° of proof spirit it would fall into the class of spirituous mixtures, and require a spirit licence for its sale. In the case of a compound made from beer, a beer licence would be required where the original gravity of the liquid was more than 1,016° or it contained 2 per cent. or upwards of proof spirit.

**Bitumen**, or asphaltum, is a mineral pitch formed by evaporation of a petroleum exudate from the earth. The chief use of asphalt is as a binder in road-making, but the best soluble qualities are also used in varnish-making. The Pitch Lake of Trinidad is 127 acres in extent and of unknown depth. During 1922 the exports from Trinidad (including manjak) were 139,433 tons, valued at £340,000, compared with 92,300 tons, valued at £235,500, in the previous year; in 1923 the exports were 168,250 tons.

**Black Beer, Sale.**—This, although liable to beer duty as beer, does not ordinarily require a licence for its sale, as no fermentation takes place in it, and so it is non-alcoholic. It is commonly made from malt or malt extract to which materials of a medicinal nature are added, and it has an original gravity of 1,200° or upwards. When brewed by a brewer who does not brew other beer also, a special rebate is made in the beer duty of £5 per standard barrel of 36 gallons.

**Black lead.**—See Graphite.

**Blaud's Pills.**—The original pills are a proprietary article, but the Board of Customs and Excise permit the sale unstamped of "Blaud's Pills" prepared according to the B.P., or French Codex formula. The same applies to the ingredients made into capsules or tablets.

**Bleaching Powder**, or chloride of lime, should be the dry powder obtained by action of chlorine or slaked lime, with a chemical corresponding to  $\text{Ca}(\text{OCl})\text{Cl}$ . In contact with air it absorbs water and carbon dioxide, decomposing with slow evolution of chlorine and formation of calcium carbonate. This property makes chloride of lime useful as a deodorant and disinfectant of latrines, etc. It is packed by the makers in air-tight cartons, which, however, require careful handling if they are to remain intact. In any case, chloride of lime must be kept well away from ordinary stock, as its odour is penetrating and clinging. The chief use of chloride of lime is to prepare bleaching liquor for bleaching cotton and linen. The "available chlorine" (after acidifying) is a measure of care in manufacture and storage. For *calx chlorinata* of the British Phar-



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macopœia this must not fall below 30 per cent., but good commercial chloride of lime will yield 35 to 40 per cent. of available chlorine. Chloride of lime is the basis of various types of chlorinated disinfectant solutions, either direct (liquor calcis chlorinatæ) or by double decomposition with sodium carbonate (liq. sodæ chlorinatæ, B.P., and Labarraque's solution). Daupresne's solution is chlorinated soda and sodium bicarbonate. Dakin's solution is chlorinated soda with boric acid. Eusol is chlorinated lime and boric acid (best freshly made). Eupad is a mixture of equal parts of boric acid and chloride of lime used as a disinfectant and for extemporaneous preparation of eusol. Eau de Javelle is a chlorinated potash solution. Milton and Antiformin are trade names for chlorinated solutions. The active agent in the above disinfectant solutions is hypochlorous acid (with boric acid) or hypochlorites, and, wherever accuracy is desired, they should be standardised before use, because they are prone to decomposition by light and air or prolonged standing. Such solutions may be kept for a month or even more in perfect darkness if bottles are full (i.e., carbon dioxide is excluded). The action of carbon dioxide is to produce chlorine, but boric acid forms the unstable hypochlorous acid (and practically no chlorine). Chlorinated liquors, such as eusol or Dakin's solution, should contain 0.4 to 0.5 per cent. of hypochlorous acid. A solution of pure hypochlorous acid of this strength, which keeps well in the dark, can be made by distilling one part of chloride of lime with three times its weight of boric acid and thirty of distilled water, collecting one-third. This, though pure and relatively stable, is little known, and appears to have been overlooked in the commercial exploitation of chlorinated disinfectants.

**Bleeding, to Stop.**—Find the bleeding point, place over it a pad of cyanide gauze, and bandage firmly. This applies to both venous and arterial bleeding. In the latter case it may be necessary to tie the artery; but a doctor must be sent for at once if there appears to have been intermittent spurring, the bandage having, of course, been applied first. The most common urgency, hæmorrhage, is from a ruptured varicose vein, and the pad and bandage may save a life if applied at once. Hæmorrhage from lungs or stomach always calls for immediate medical assistance, and advice as to safest means of transport to home or hospital. If the bleeding is from a lacerated scalp, first cut away all hair around the wound, wash well, and apply pad and bandage.

**Blende** is the natural sulphide of zinc. The yellow variety is known as rosin-blende; the brown or black shade is called black-jack, the colour of which is due to admixture of sulphides of iron and cadmium and other impurities. Blende is the chief source of zinc and of zinc oxide made therefrom. Blende occurs usually associated with galena (lead sulphide) in Derbyshire, Cumberland and Cornwall in England, and in numerous localities throughout the globe.

**Blisters, Sale of.**—Emp. cantharidini, emp. cantharidini liq., blistering liquid containing cantharidin, ung. hydrarg. iod. rub., and all vesicating liquid preparations of cantharides are poisons in Part II of the Schedule of the Poisons and Pharmacy Act, 1908, and Section 17 of the Pharmacy Act, 1868.

**Blood Root** is the rhizome of *Sanguinaria canadensis*, Linn., N.O. *Papaveraceæ*, a perennial plant, widely spread in open woods or rich soil from Canada to Florida. It is usually collected in the autumn. The rhizome is about the thickness of the little finger, simple or with one or two short branches, varying in appearance internally, the broken surface showing either numerous red dots on a whitish starchy ground, due to cells containing red colouring matter, or deep red throughout, or even blackish red and resinous, due to the more or less abundant diffusion of the orange-red constituents. The taste is bitter and acrid. It is used in

powder, like snuff, for polypus in the nose, and a tincture is taken internally, but it is necessary to give it in repeated small doses, as fatal results have followed large doses, which depress the action of the heart and cause nausea and vomiting. It is interesting as containing alkaloids found also in *Chelidonium majus*, the greater celandine, a papaveraceous herb indigenous to this country. The sanguinarin of the eclectics is not the alkaloid sanguinarine, but a dried resinoid extract precipitate, obtained by pouring a strong tincture into water. Sanguinarine forms colourless crystals, but deep-red crystalline salts with acids. Blood root is also known as puccoon and tetterwort in the United States. It is often grown in gardens in this country as a rocky plant. A tincture of the dried rhizome and one of nitrate of sanguinarine are used in homœopathic medicine.

**Blue Book.**—A term applicable to any official publication of the British Government issued with a dark-blue paper cover, and loosely applied to any Government publication, whether so bound or not. A decision to print its proceedings was adopted by the House of Commons in 1681, but it was not until 1836 that Parliamentary papers were on sale to the public. Typical blue books, in either the narrow or the wide sense of the phrase, are the "Debates" of both Houses of Parliament, reports of committees, commissioners' reports, statistical returns, and correspondence; these are printed as the outcome of an order by either House. Parliamentary papers are so arranged as to admit of being bound in series, and are annually stored in volume form in the greater public libraries of the kingdom. Complaints have of late been made to the effect that the increased cost of Government publications is preventing the smaller centres of population from maintaining complete sets in their municipal libraries. Among recent blue books of importance to the drug trade are the reports of the Departmental Committee on Industrial Alcohol (1904-05); of the Fertilisers and Feeding Stuffs Committee (1905); of the Joint Select Committee on the Poisons and Pharmacy Bill (1908); of the Select Committee on Patent Medicines (1914, pp. 891); and of various subcommittees appointed under the Profiteering Act, 1919. The alphabetical index to printed Bills, reports, etc., for the year 1922 comprises 78 pages. Foreign administrations have similar usages in respect of their official publications, but not with anything like the same degree of consistency. Subject to this reservation, the usual colour in France is yellow, in Germany (as in the recent compilation on the European war) white, in Italy green, in Spain red, in Belgium grey, in Austria red, in Greece white, in Serbia blue, in Russia (prior to the revolution) orange, in the United States (for diplomatic correspondence) red, in Japan grey, in China yellow.

**Blue Cohosh.**—The root of the perennial herb, *Caulophyllum thalictroides*, N.O. *Berberidaceæ*, a native of North America from South Canada to Kentucky and Carolina in rich woodlands, and flowering in April and May. The rhizome is greyish-brown externally and white internally, with numerous narrow woody wedges surrounding a central starchy pith. The upper surface has short knotty branches and cup-shaped depressions, and the lower surface numerous roots of about 3 in. to 4 in. long and one-twenty-fifth of an inch broad. It has a sweetish, acrid taste. It is chiefly used as a uterine tonic and emmenagogue, in combination with pulsatilla, viburnum prunifolium and hydrastis (See B.P. Codex, p. 1327.) When hydrastis was cheaper it was often found in imported cohosh root. In the United States it is also called squaw root and papoose root. The eclectic resinoid preparation known as caulophyllin, prepared by precipitating a strong tincture with water, must not be confused with the alkaloid caulophylline (methyl cytisine), which is nearly tasteless and possesses about one-tenth the toxicity of cytisine. The action of the drug is possibly owing to the resin and two saponins, caulo-saponin and caulo-phylo-saponin.

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**Blumea or Ngai Camphor.**—This variety of camphor is manufactured in China from the *Blumea balsamifera*, a tall herbaceous plant abundantly distributed throughout tropical Eastern Asia. When in the crude state the drug appears in dirty white, crystalline grains; when pure, it takes the form of colourless crystals an inch long. It resembles Borneo camphor in every particular except in optical properties. Its value lies between that of Formosan and Borneo camphors. It is extensively used by the Chinese as a medicine and for the manufacture of Chinese ink. Canton is the centre of the industry, and small quantities are exported, chiefly for the consumption of Chinese in other countries.

**Board of Customs and Excise.**—Since February 1909, up to which date the administration of Excise had formed part of the Inland Revenue Department, the Board of Customs and Excise has existed as a joint body for the administration of matters relating to duties of Customs and Excise. The members of the Board are appointed by the Crown, and are subject to the direction and control of the Treasury. They are given by statute all the powers necessary for putting into force any Act of Parliament relating to Customs or Excise duties. They may order proceedings to be taken for the recovery of any penalty imposed by such an Act, and they are empowered to compromise with an offender for any offence against the Act, and to remit or mitigate any fine or penalty and restore any goods seized under an Act relating to Customs or Excise. They are authorised to make regulations for the prevention of smuggling, and they may reward any persons instrumental in the capture or conviction of smugglers. They can hold inquiries upon oath into any question which may arise in connection with duties of Customs or Excise, and can compel the attendance of a witness from any part of the United Kingdom at such an inquiry. Officers are appointed by them who have a right to go upon all harbours, docks, piers and ships, and to search persons suspected of having smuggled goods in their possession. In addition to their ordinary revenue functions, the Board take part in the administration of the Public Health and Old Age Pensions Acts, the Copyright Acts, the Merchandise Marks Acts, the Dangerous Drugs Acts, the Merchant Shipping Acts, and the Acts preventing the irregular exportation of arms and ammunition and of gold or silver coin or bullion.

**Board Meetings.**—Meetings of the directors of a company, for the purpose of providing for the domestic business of the company, are commonly regulated by the company's articles. Unless the articles otherwise prescribe, a notice must be duly given of the meeting to each of the directors, who is not abroad or otherwise out of reach, a reasonable time before the meeting. The notice need not specify the nature of the business to be transacted. If this notice is not sent out, the proceedings may be invalid unless all the directors are in fact present. The quorum which must be present is usually fixed by the articles; if not so fixed, the number who usually attend will make a quorum. If there has been any irregularity as to notice of meeting, quorum, or the like, the proceedings at the meeting, although invalid, may be validated by a subsequently duly convened meeting. If the directors delegate their powers to a committee and do not fix a quorum, the rule is that all the members of the committee must be present at its meetings. The law requires minutes to be kept of the proceedings at a board meeting. These are entered in a minute book, and when signed by the chairman either at that meeting or at the next succeeding meeting they become *prima facie* evidence of what actually took place. A director who is present at a meeting at which the minutes of proceedings of a prior board meeting are read and confirmed is not thereby made responsible for what was done at the prior meeting.

**Board of Trade.**—The Government Department now known as the Board of Trade was established as a Committee of the Privy Council in 1786 "for the consideration

of all matters relating to trade and foreign plantations." Until about 1840, the function of the Board was purely consultative; but as time went on its administrative powers developed, and since 1871 it has been practically an administrative office. The permanent departments of the Board of Trade are as follows: Mines; Commercial Relations and Treaties (including the Imports and Exports Licensing Section); Industries and Manufactures (including the Standards and Gas Administration Sections); Industrial Property (including the Patent Office); Statistics; Mercantile Marine; Companies; Bankruptcy; Petroleum; Intelligence and Parliamentary; Registration of Business Names; Solicitor; Finance and Establishment. The temporary departments are the Clearing Office for Enemy Debts, the Russian Claims Department, and the Reparation Claims Department. The "Board of Trade Journal" is published weekly, and contains news and information regarding trade in this country and abroad. The Department of Overseas Trade (Development and Intelligence) is conducted jointly by the Board of Trade and the Foreign Office. The principal function of this department is to obtain information from all important overseas markets upon commercial subjects for the benefit of British traders engaged in the export trade. This information is collected mainly by Trade Commissioners in the Dominions and by Commercial Diplomatic Officers in foreign countries. The Department of Overseas Trade has a museum of foreign samples and a library of foreign catalogues; it also organises the annual British Industries Fair (*q.v.*).

**Board of Trade Unit (B.T.U.).**—Commercial unit of electricity equal to 1,000 watt hours or 1 kilowatt hour.

**Body-names.**—By this is meant the description of a medicine by the name of an organ or part of the human body, e.g., "Liver Pills" and "Bronchial Mixture." Also such forms as "Mixture for the Lungs." Unlike ailment-names, they do not make a medicine dutiable. This applies to adjectival as well as substantive forms of names.

**Boldo.**—The leaves of the *Pneumus Boldus*, a tree indigenous to Chile and collected in the province of Aconcagua, belonging to the small N.O. *Monimiceae*, are used as a liver stimulant and diuretic, more frequently in France than in this country. The leaves are oval, about 2 in. long and 1½ in. wide, convex, greyish green, somewhat rigid and brittle, with the entire margin slightly revolute, the surface studded with raised points crowned with a group of one-celled, thick-walled brittle hairs and furnished with numerous oil cells. The taste is somewhat pungent and bitter, and the flavour recalls that of lemon and coriander. The leaves contain, beside the volatile oil, an alkaloid boldine, and a glucoside, boldo glucin. The diuretic properties are said to be due to the volatile oil. Boldo glucin has been given internally in 3-grain doses, in capsules, as a hypnotic. *Cryptocargo Pneumus*, a lauraceous tree, grows in the same districts as boldo, and resembles it, but the leaves have a wavy margin and are not furnished with hairs. Both the leaves and bark of this tree are used in Chile under the name of "Pneumo" for liver complaints and rheumatism.

**Bole** is a clayey substance of variable composition (usually 40 to 45 per cent. silica, 20 to 25 per cent. alumina, 1 to 10 per cent. ferric oxide, and about 25 per cent. water. The water present gives an unctuous touch and the colour varies from yellow to red or brown, according to the content of iron oxide. Saxony is the chief source of bole. The terra sigillata of olden times was a bole from Cappadocia. Bole armenian of modern times is some form of naturally occurring red ochre consisting of impure ferric oxide.

**Bona fide.**—Expression occurring in many Acts of Parliament, which has been defined judicially as being equivalent to the word "honestly." It means, literally, "in good faith," and implies absence of fraud.

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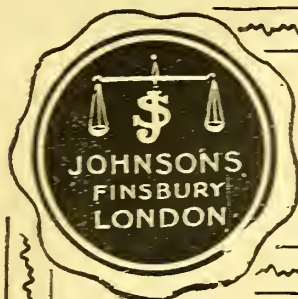
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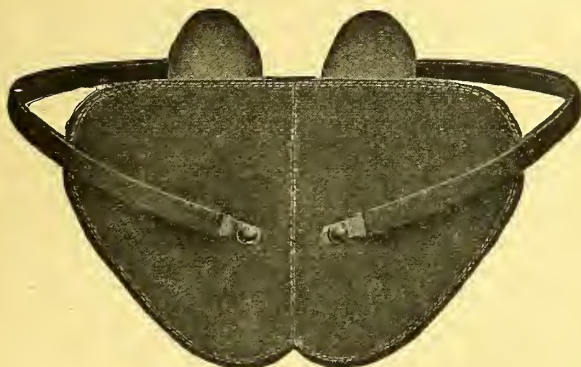
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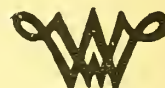


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# THE CHEMIST AND DRUGGIST

## SUPPLEMENT

42 CANNON ST.  
LONDON E.C. 4

DECEMBER 27, 1924

*This Supplement is inserted in every copy of The Chemist & Druggist.*

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## THE DAY IN THE YEAR

*"Heap on more wood! The wind is chill; But let it whistle as it will, We'll keep our Christmas merry still."*—SCOTT.



What a wonderful day Christmas Day is, one among the 365 when everybody radiates good fellowship, when a real effort is made to care for the poor and hungry, to cheer the sick, and to brighten the environment of the lonely and the aged. A day when feuds are forgotten, differences are ended, and peace, goodwill and true happiness reign.

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persevered with and carried out, or to be half-heartedly tried and allowed to lapse as our personality dictates.

On Christmas Day let us all forget business as business, profit and loss, in fact, anything and everything connected with self, but let us go all out to let Christmas shine in the world and radiate in and through each and all of us.

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